TEXTILE WORLD

OCTOBER, 1960
PRICE $1.00

A McGRAW-HILL PUBLICATION

WORKING ON A COMMITTEE:

7 Rules That Can Help You Be a Winner

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How Carolina Mills Modernized An Old Mill—Fast

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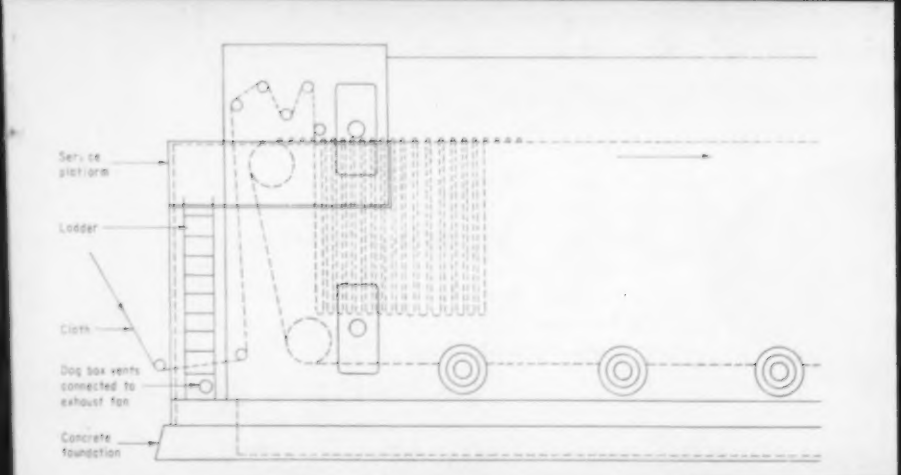

Quick Refresher On Print Work Agers

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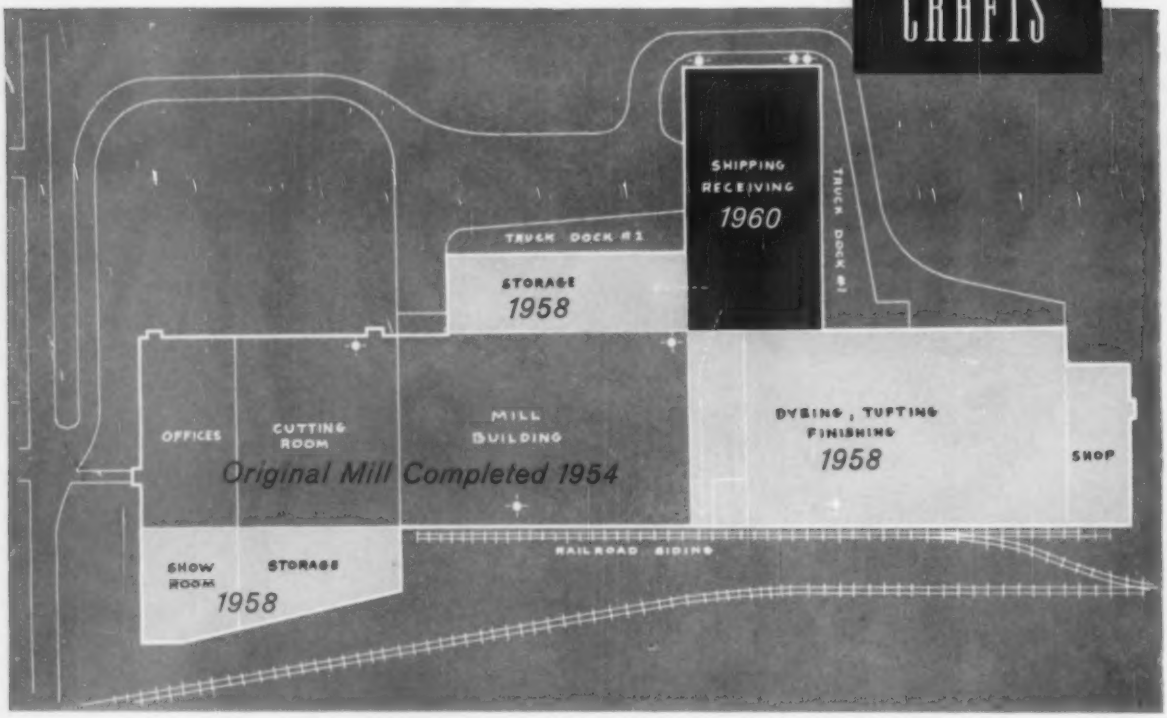
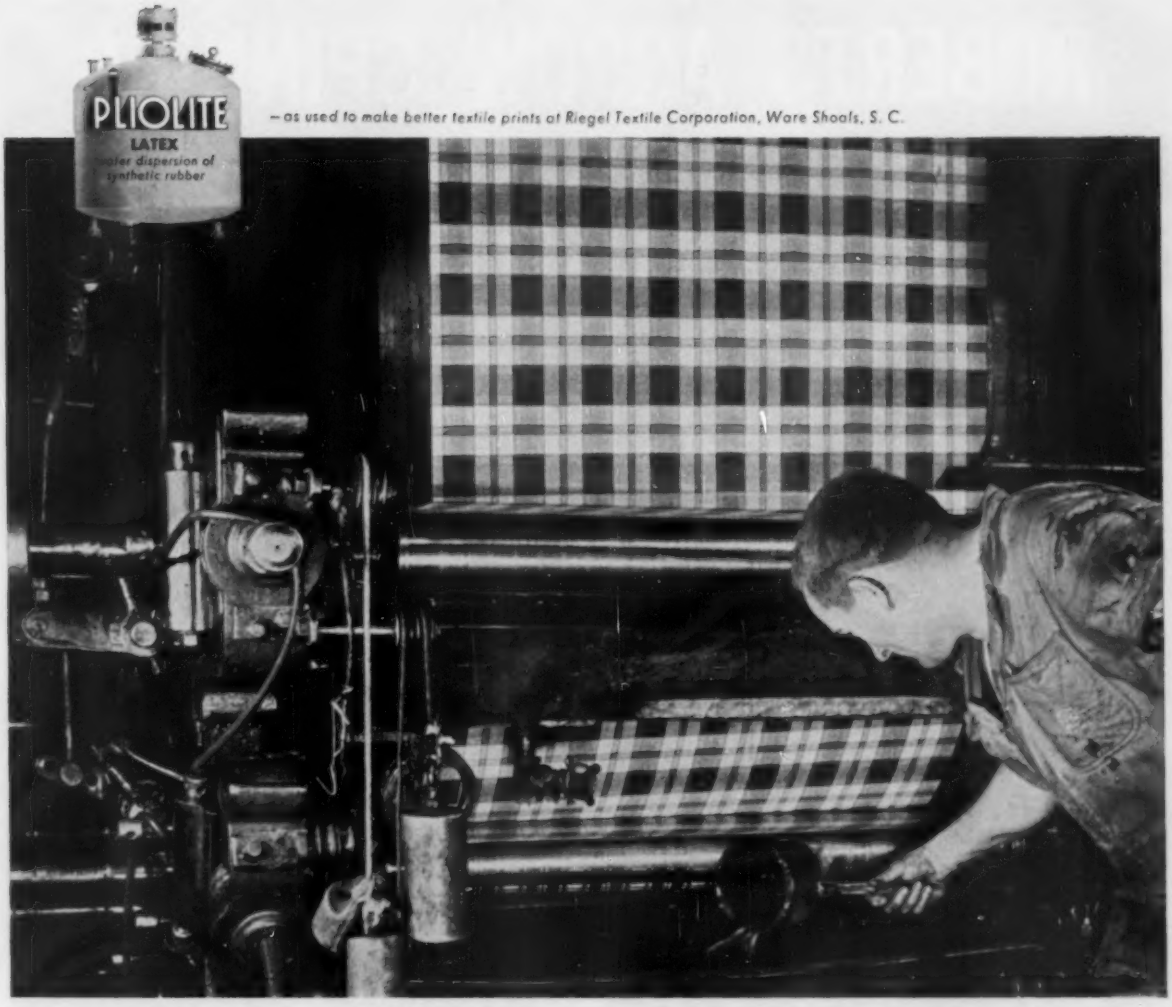


1958 EXPANSION 1960

Completion of a new addition to Cabin Crafts' Springdale Plant at Dalton, Georgia, will mark another important milestone in a long-range expansion program started by Cabin Crafts in 1953. This is Cabin Crafts' third major project designed to keep pace with the steadily-growing demand for its product and the need for modern and efficient methods and facilities. ▪ Robert and Company Associates worked with Cabin Crafts in originally planning this program and is carrying these expansion projects to completion.

ROBERT AND COMPANY ASSOCIATES
Textile Engineering Division
ATLANTA

For more than 43 years, Robert and Company has been privileged to serve many of the great names in textiles and in other industrial fields. A large staff makes it possible to get your project under way immediately, as a complete — one package job, without sacrificing the advantages of competitive bidding.



—as used to make better textile prints at Riegel Textile Corporation, Ware Shoals, S. C.

There's less "crocking," less "tarnishing" with PLIOLITE LATEX

If you're having trouble with crocking in your emulsion printing, here's a tip: Look into the many synthetic latices by Goodyear.

Take the case of one industry leader. *Eight years ago,* he started modifying his emulsions with PLIOLITE LATEX. The results are shown in the crocking test at left.

PLIOLITE LATEX not only minimizes crocking, but also reduces "tarnishing"—effectively cutting down roll clean-up time. What's more, it permits good color values, adds to the binding strength of the emulsion and improves the print's resistance to the abrasion of laundering.

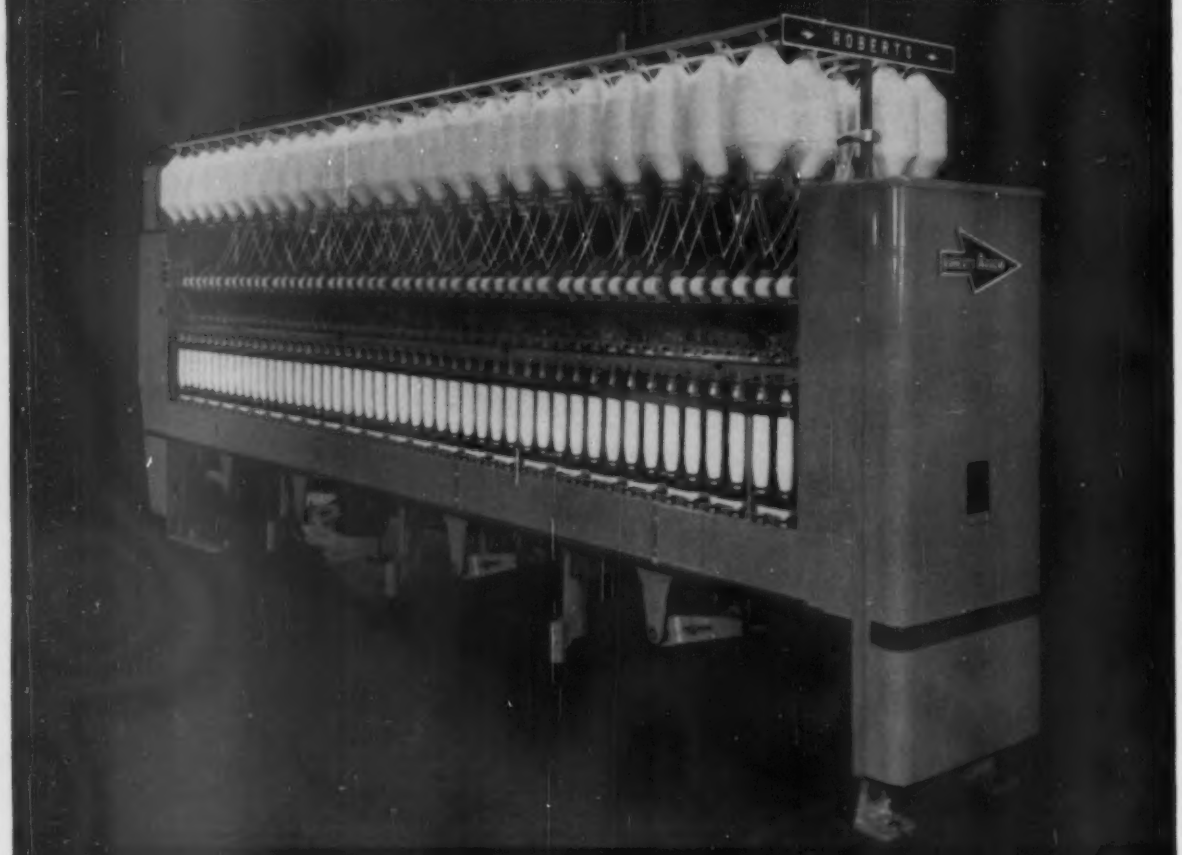
Why not learn more about PLIOLITE LATEX and the other latices in the Goodyear line? Full details, including the latest *Tech Book Bulletins,* are yours by writing Goodyear, Chemical Division, Dept. V-9433, Akron 16, Ohio.

GOODYEAR

CHEMICAL DIVISION

Pliolite—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

ROBERTS ARROW SPINNING



Versatility For All Yarn Counts !

Arrow Spinning Frames are available to run all yarn counts from 2's to 120's. More than 1000 Arrow Frames are in service at large and small mill organizations in the U. S. A.

Several examples are provided at the right which demonstrate the versatility of Arrow Spinning.

The newly refined Arrow offers greatest value in high speed operation, bigger packages, dependable performance, low initial cost, and maintenance-free operation. Arrow Spinning is available for both cotton and worsted systems.

Roberts Technical Service backs up every Roberts installation with intelligent understanding of the mill's requirements and ambitions.

THREE MILLS RUNNING ARROW FRAMES ON A WIDE RANGE OF YARN NUMBERS

- An independent producer of Osnaburgs and Corduroys runs 62 Arrow Frames with 20,000 spindles making 3.25's to 8.25's warp spun filling yarn on 3" rings and 12" bobbins; 8's to 21's warp yarn on 3" and 2½" rings and 12" bobbins; and 14.5's to 22.5's direct spun filling yarn on 1-9/16" rings and 8¾" quills.
- A major mill group uses 50 Arrow Frames with 16,000 spindles to produce 80's to 100's combed long fiber cotton yarn for fine broadcloths on 1¾" rings and 10" bobbins.
- A small carded knitting yarn mill uses 20 Arrow Frames with 5040 spindles to run 26's yarn on 2¼" rings and 11" bobbins.

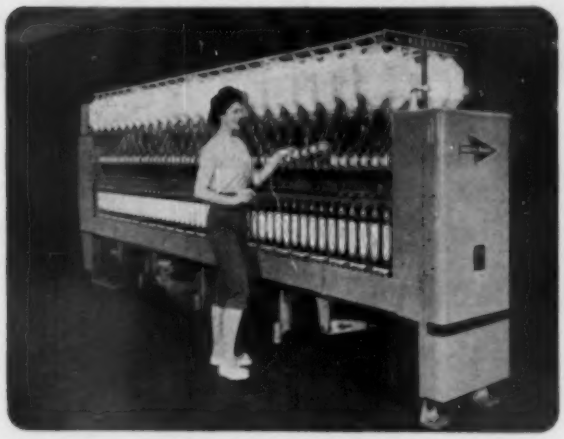
ROBERTS COMPANY

SANFORD, NORTH CAROLINA

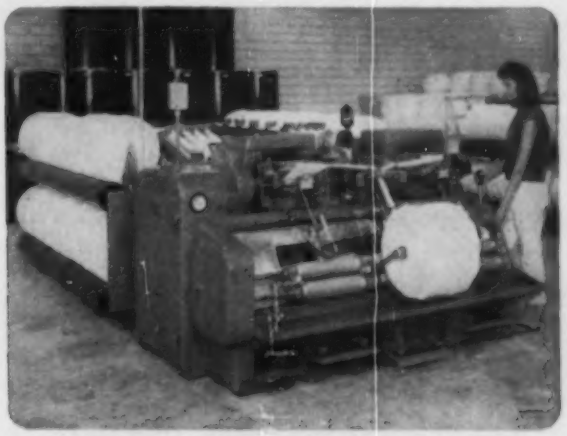
ROBERTS

YARN MAKING MACHINERY

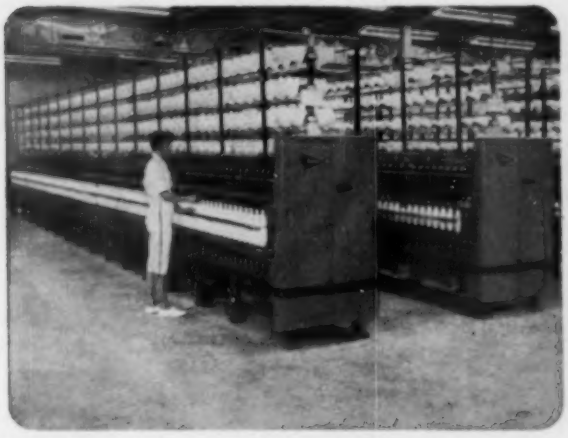
for Cotton, Worsted, or Long Fiber Systems



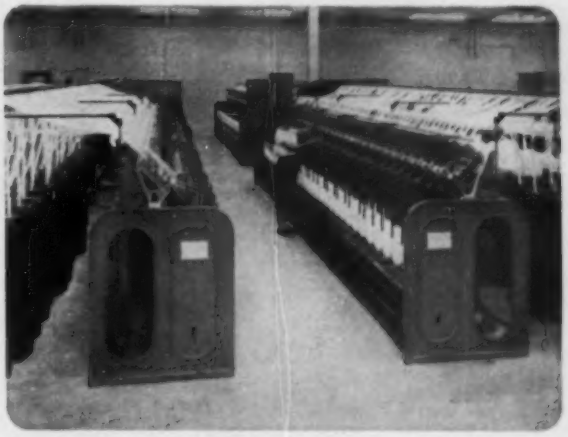
ROBERTS ARROW SPINNING for both cotton system and long fiber system yarn spinning for natural and synthetic fibers and blends. High speed, all ball bearing, big package Arrow Spinning Frames in 25-inch or 36-inch width. Exceptional flexibility and simplicity of operation in the manufacture of improved quality yarns at reduced costs and modest initial investment.



ROBERTS-TEMATEX worsted system preparatory machines, including ParaBlenders, ParaDrafters and AutoEveners, are rugged, high performance machines for pinning, parallelizing, drafting and blending worsted and synthetic fibers prior to roving and spinning, and in top making plants. AutoEvener automatically and instantaneously corrects delivered sliver weight to within plus or minus 1%.



ROBERTS TWISTERS for plying yarns are completely ball bearing equipped and designed for high speed ring twisting operations. 25- or 36-inch frames. Up to 3½-inch rings and 12-inch bobbins. Package weights 1¼ pounds on cotton, ¾ to 1 pound on worsted.



ROBERTS ROVING FRAMES are ball bearing rebuilt and feature all-new heavy duty ball bearing Roberts Double Apron Drafting Systems for cotton, short staple or long fiber synthetics, worsted and blends. 10x5 and 12x7 packages. Provisions for double headed spools.

Simplicity of design, rugged construction and high speed ball bearing operation are the trade marks of all Roberts Company machinery. Roberts also supplies rebuilt spinning frames and modernization change-overs for mills' existing machinery.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

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VOLUME 110, NO. 10 OCTOBER, 1960

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Coming Next Month: A New Angle on Management

It's called "systems management," and it gets its label from the space age. How does it affect you? In many ways. For example, many a mill manager has known the frustration that comes when you've got your mill humming like a top, with everything working perfectly, only to have an important customer (or maybe a whole group of important customers) cancel orders, demand hurry-up shipment, ask for special treatment. Result? A tangled production schedule, possible lost sales (and profits), unnecessary confusion. That's where the systems management approach comes in. By looking not only at production but marketing problems, alert managers are learning how to handle goods from loom to shipping dock so that there's a minimum of confusion, a maximum of flexibility. You'll get an insight into this wide-angle type of management in November's TEXTILE WORLD—**"Making the Systems Approach Work in Material Handling."** *Watch for it.*

Announcing...

From
Staley's Research
Center

A major advancement in stream pollution control!

OXYTROL

Low B.O.D. STARCH

Now, for the first time—a low B.O.D. starch for warp sizing—with only a fraction of the B.O.D. of regular textile starches. Recommended for sizing a variety of yarns—and at low solids levels!

Now available in limited pilot plant quantities—OXYTROL will be in full commercial production on completion of Staley's new plant

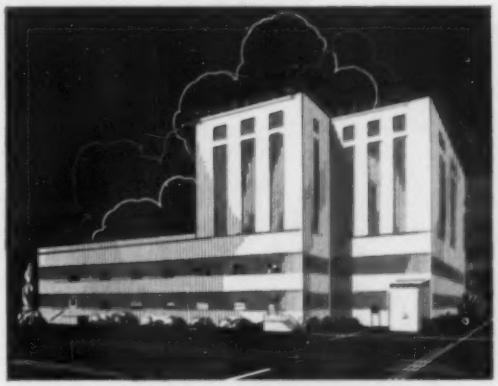
Here's another Staley first—an economical warp size which provides an answer to water disposal problems that have long confronted the textile industry.

This latest Staley development, new OXYTROL, is a low B.O.D. (biochemical oxygen demand), chemically modified starch. Standard 5-day B.O.D. tests prove it exerts some 70% less B.O.D. than regular starches.

Free-flowing, cold water swelling, Staley's new OXYTROL starch desizes easily. And can be used at any desired temperature.

OXYTROL starch gives better weaving protection. Actual mill runs demonstrate cotton warp sizes of 5% to 7% solids, made with OXYTROL, equal the performance of warp sizes of 10% to 12% solids, made with regular starch sizes.

Save 13¢ to 21¢ per pound on your low B.O.D. sizing costs. Investigate and compare the many advantages new OXYTROL low B.O.D. starch can bring to your operation. For further information, see your Staley representative, or write:

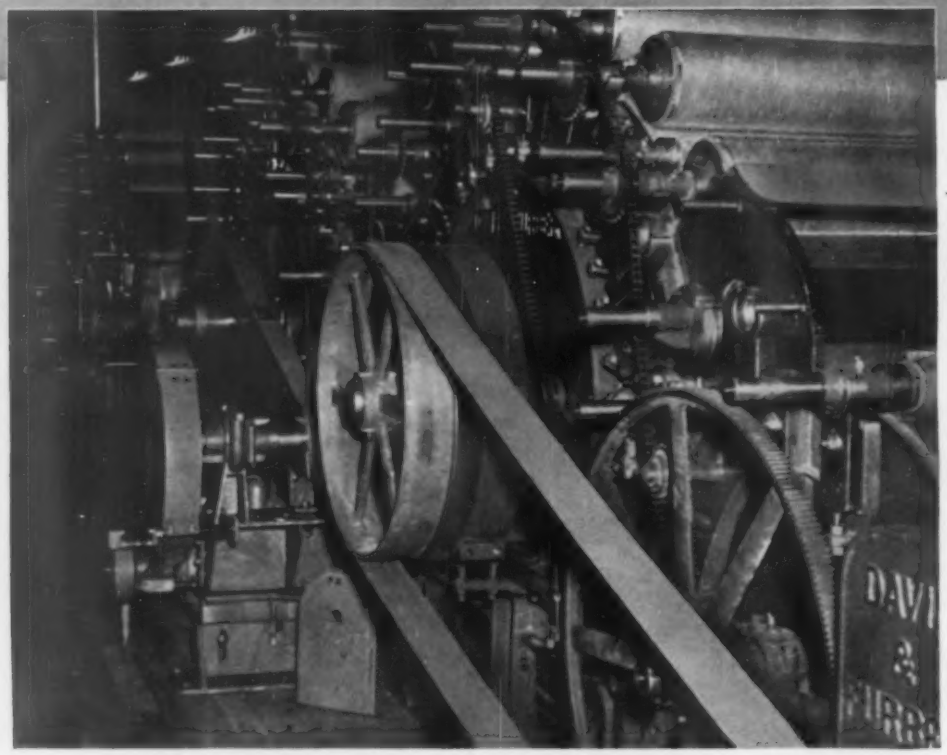


Artist's drawing of Staley's new six story OXYTROL production plant now under construction. Scheduled for completion sometime later this year, plant will house new process equipment developed by Staley's.

A. E. STALEY MFG. CO.
Decatur, Illinois

ATLANTA • BOSTON • CHICAGO • CLEVELAND • KANSAS CITY • NEW YORK • PHILADELPHIA • SAN FRANCISCO • ST. LOUIS

More Power to the Textile Industry



Rhoads belting gives efficient, economical performance on carding machine.

In the Textile Industry, where machine performance so often depends on smooth-running, long lasting belts — lickerin, doffer, gainer, stripper, etc., — Rhoads stands out for performance and economy.

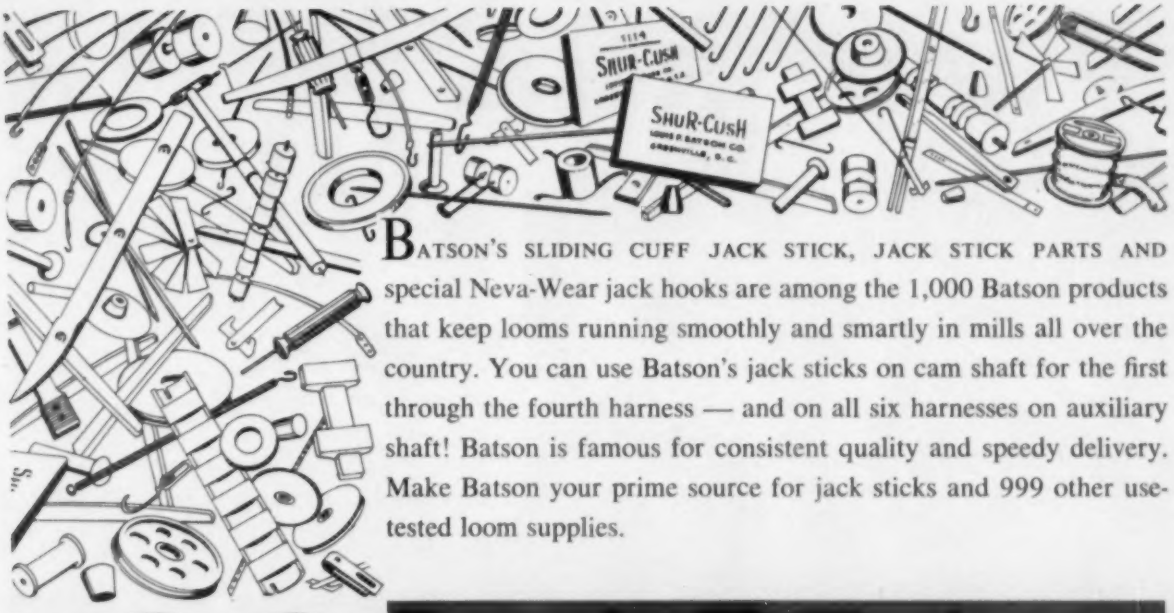
At Rhoads, there is a flat belt that is exactly right for your operating conditions — economical in original cost and in operating cost, shock absorbing, highly efficient in speed reduction, safe, long-lasting.

Rhoads recommends the belting that is engineered to meet your needs — famous Tannate leather belting, new Texalon nylon core synthetic belting, new Tanastic nylon core leather belting. For quotations or for literature on belting or leather check straps, address: Engineering Department,

J. E. RHOADS & SONS
Wilmington 99, Delaware

RHOADS

Established 1702 . . . Pioneers in Mechanical Power Transmission

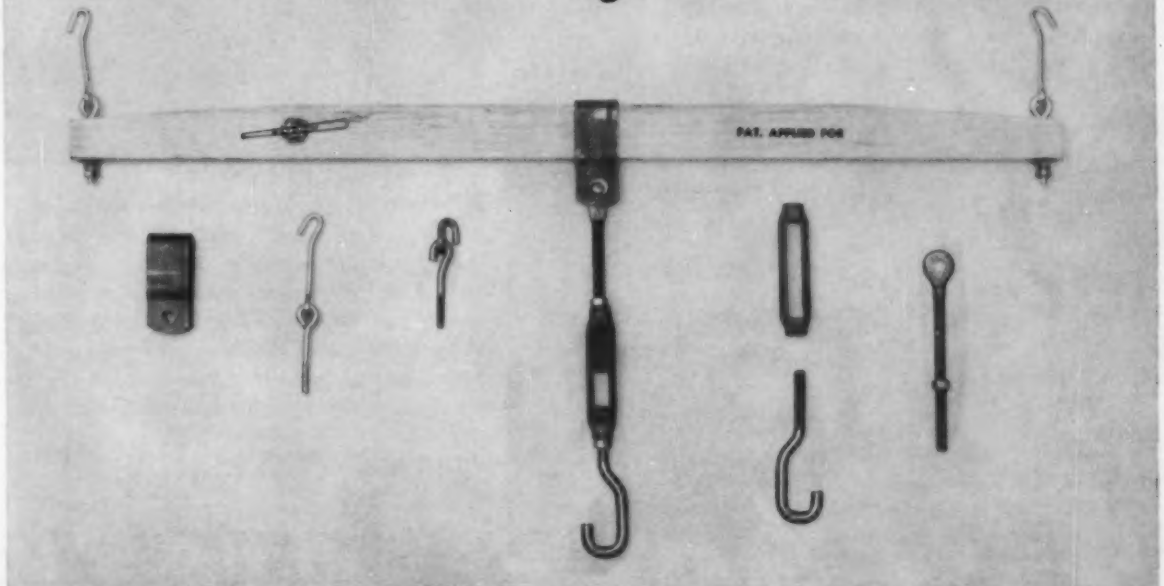


BATSON'S SLIDING CUFF JACK STICK, JACK STICK PARTS AND special Neva-Wear jack hooks are among the 1,000 Batson products that keep looms running smoothly and smartly in mills all over the country. You can use Batson's jack sticks on cam shaft for the first through the fourth harness — and on all six harnesses on auxiliary shaft! Batson is famous for consistent quality and speedy delivery. Make Batson your prime source for jack sticks and 999 other use-tested loom supplies.

Louis P. Batson Company

P. O. BOX 772 • GREENVILLE, SOUTH CAROLINA

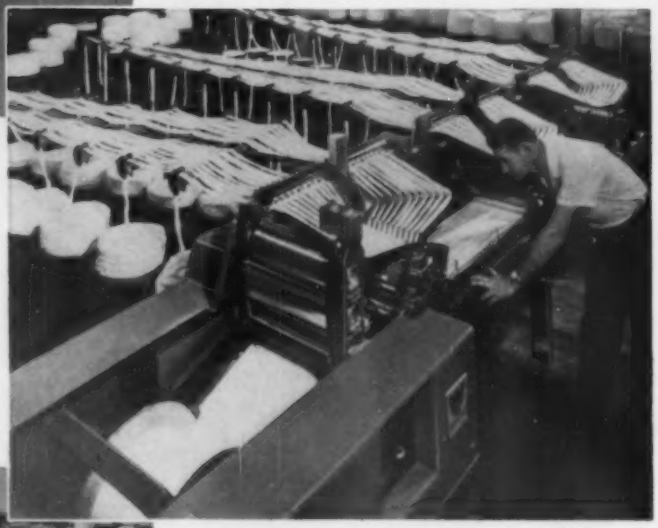
The BATSON Sliding Cuff Jack Stick



ONE OF A THOUSAND **Batson** USE-TESTED PARTS

the WHITIN way to BETTER COMBING

The Whitin combing process is gaining rapid recognition as a major advance in the manufacturing of combed yarns. Scores of mill customers are reporting the increased production of higher quality sliver. Manufacturing costs are low and its simplicity of construction adds to its efficiency and ease of maintenance.



The Whitin Even-Draft Drawing Frame is unexcelled for drawing either before or after combing. Sliver of uniform quality is produced at speeds of 450† F.P.M. It also features a proven pneumatic waste removal system.

†Up to 600 F.P.M. carded.

Laps are formed on the new Super Lap machine. It drafts 48 - 60 ends at up to 800* lbs. per hour, forming a lap ideal for combing.

The Whitin Super J Comber has established an international reputation for fine performance. It is capable of producing up to 60* lbs. per hour. High nep removal ratio, excellent sliver quality and accurate waste control contribute to better yarns than ever being spun from given cotton grades. Its performance is equally outstanding on either super quality or production combing.

**100% efficiency.*

Sales agents in all principal textile centers

WHITIN MACHINE WORKS

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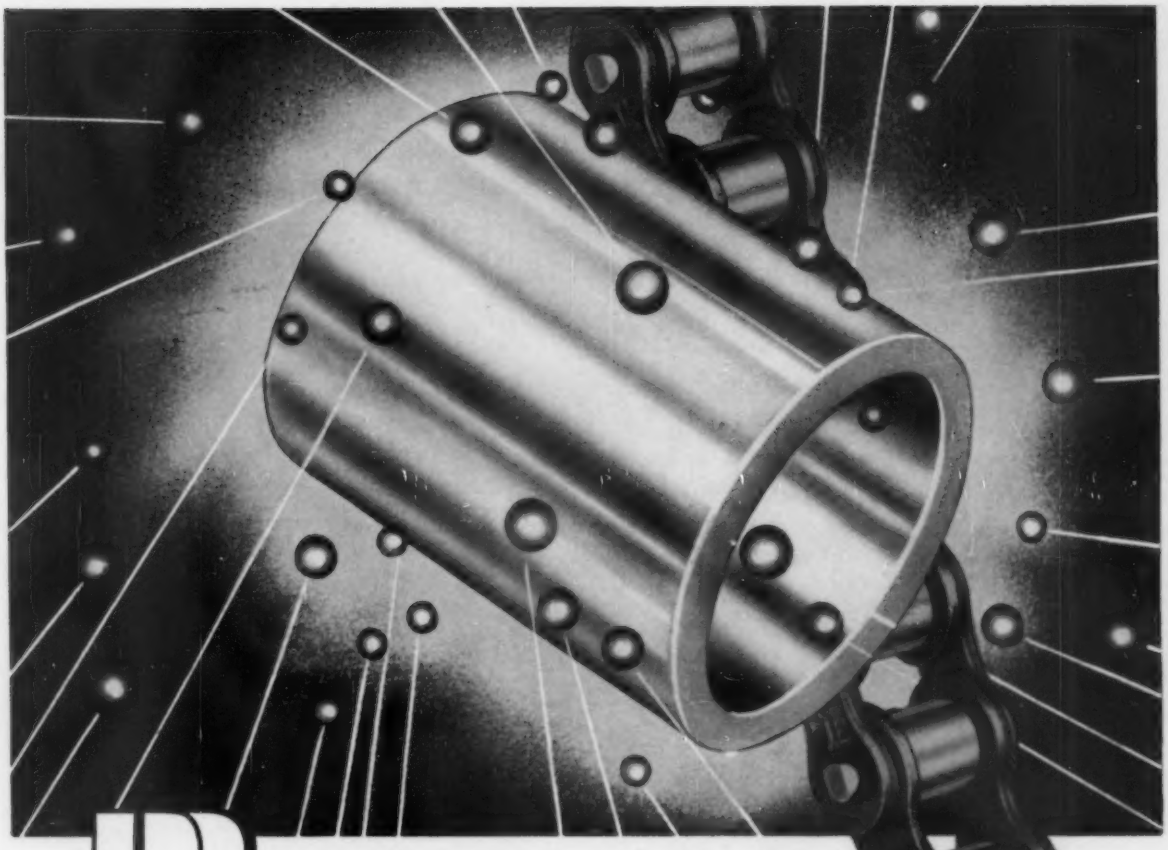


Rollers
fortified against fatigue

Shot-peening "cold-works" extra fatigue life into LINK-BELT roller chain

Shot-peening gives rollers of Link-Belt precision steel roller chain exceptional strength and stamina. And after shot-peening, they are burnished rather than ground or sanded. This achieves a SILVER-BRITE finish—and more important, *retains the fatigue resistant qualities of shot-peening.*

Other long-life "extras" of Link-Belt roller chain include: close heat-treat control, lock-type bushings, pre-stressing, pitch-hole preparation. For details, see Book 2657.

LONG LIFE AHEAD! Rollers for Link-Belt precision steel roller chain tumble out of shot-peening machine after being cold-worked to withstand punishment of today's high-speeds and heavy loads.

LINK-BELT

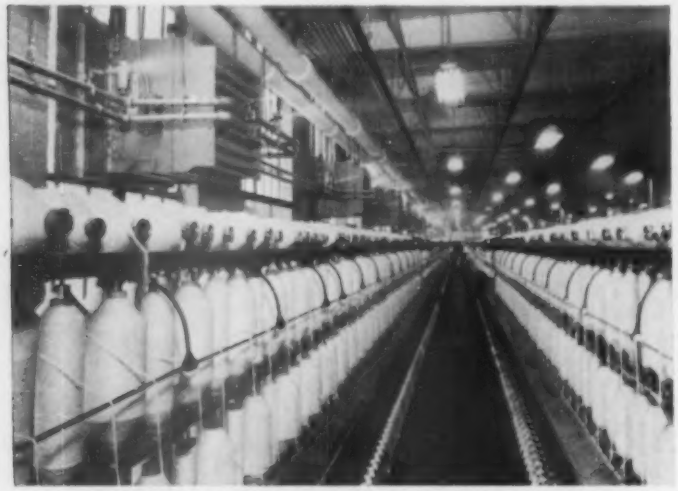
ROLLER CHAINS AND SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.
15.081

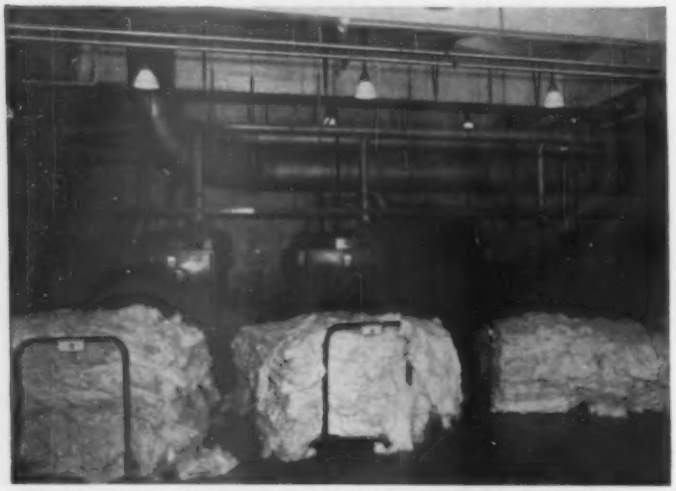
BOOK 2657 has 154 pages of roller chain data. For your copy, contact your nearest Link-Belt office or authorized stock-carrying distributor. (See CHAINS in the yellow pages of your phone book.)

Amco Central Station Air Conditioning, using cold water for cooling in warm weather, maintains the proper humidity and temperature conditions year 'round in the above spinning room.

Look to Amco for help in solving any air conditioning problem you may have



Amco ductless system of humidification, cooling and ventilating installed in a spinning room. Window units and Amco #6 atomizers visible at left, supply properly conditioned air.



Where straight humidification is desired. Amco #6 atomizers — operated with sensitive Amco humidity controls — provide just the right degree of relative humidity for blending, opening and picking operations.

Most mill owners face a variety of air conditioning problems. All areas of the three mills illustrated here, for example, required different and distinct types of air conditioning. Amco helped solve these needs by the installation of the proper Amco system, suited to the individual requirements. The results have been better quality, greater worker comfort, and improved efficiency.

Do you have an air treatment problem in your mill? Choose from these systems, used by leading mills, to provide central station air conditioning in one area, humidification alone in another, or a unit ductless evaporative cooling system in still another. Amco, of course, also installs unit dry duct systems.

Whatever your needs, remember . . . you can depend on Amco to give you reliable advice and an expert installation of the system best suited to your particular case.

AMCO

SINCE 1888

AIR CONDITIONING EQUIPMENT

American Moistening Company • Cleveland, North Carolina
Branches: Atlanta, Ga. • Providence, R. I.
Toronto, Canada

LOCAL SERVICE

1 **Now . . . wherever strapping materials are used**—selected local distributors offer new AVISTRAP cord strapping for a full range of packaging needs.

2 **New tool and accessory service**—Tools, seals and accessories available for immediate delivery from distributors' stocks. Repair service free on all tools.

3 **In-plant technical service by experts**—a highly-trained staff assists users in getting every benefit, every saving possible with AVISTRAP cord strapping.

4 **Fast, dependable deliveries** — an extensive distributor network, local inventories, assure dependable service for AVISTRAP users throughout the U. S.

AVISTRAP* CORD STRAPPING

Made from high-tenacity Avisco® rayon, AVISTRAP cord strapping out-performs metal strapping and reinforced tapes—at lower cost—in many applications. AVISTRAP is easy to handle; all coils weigh 21 lbs. Yardage equals 100 lb. coil of comparable width steel strapping. And AVISTRAP has no sharp edges, does not lash out if broken. Call the AVISTRAP distributor nearest you for a demonstration in your plant.

ALABAMA
Birmingham . . . . . Dillard Paper Co.
Mobile . . . . . Paper Products Co.

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San Francisco . . . . Blake, Moffitt & Towne

COLORADO
Denver . . . . . Dixon & Co.

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New Haven . . . . . Chatfield Paper Co.

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Cleveland . . . . . Gascon Paper Co.
Cleveland . . . . . Union Paper & Twine Co.
Columbus . . . . . Scioto Paper Co.
Columbus . . . . . Standard Paper Co.

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Knoxville . . . . . Dillard Paper Co.
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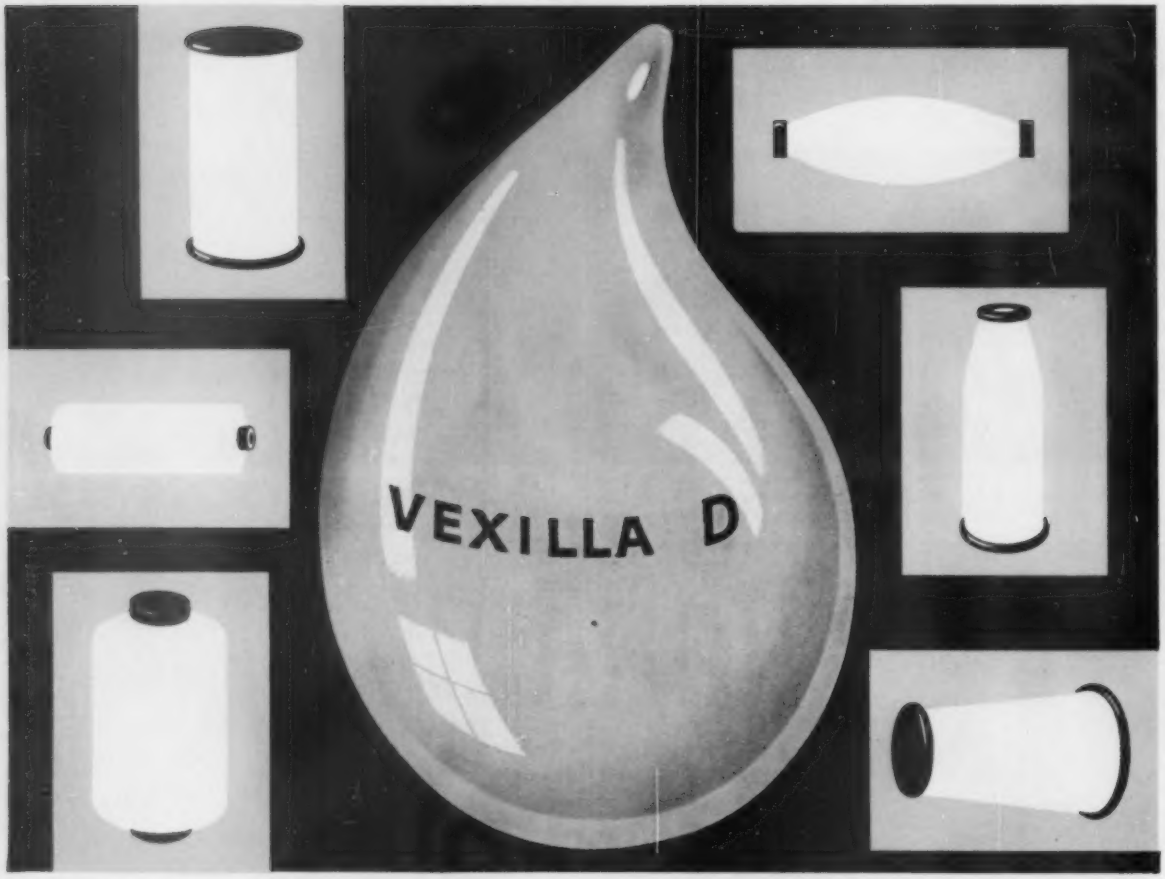

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1. Increase Production. Shell Vexilla D Oils, because of their high film strength and lubricity, permit full-speed operation with heavy packages. They also insure complete lubrication protection to bearings, whether sleeve or anti-friction type.

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3. Reduce Power Consumption. Vexilla D Oils lower frictional drag in both starting and running.

4. Reduce Spoilage. Vexilla D Oils will not atomize and fog-damage yarn on nearby spindles.

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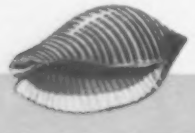
Regardless of the spindles you use, you can expect improved performance with new Shell Vexilla D Oils. Ask the Shell Industrial Products Representative to assist you in selecting the proper grades for your plant. Or write for Technical Bulletin to Shell Oil Company, 50 West 50th Street, New York 20, New York. In Canada: Shell Oil Company of Canada, Limited, 505 University Avenue, Toronto 2, Ontario.



An interesting fact! Every Shell Branded Industrial Lubricant is named for a sea shell. Shown here is the Vexilla taeniata.

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. . . heavy-duty dispersant textile machine lubricants

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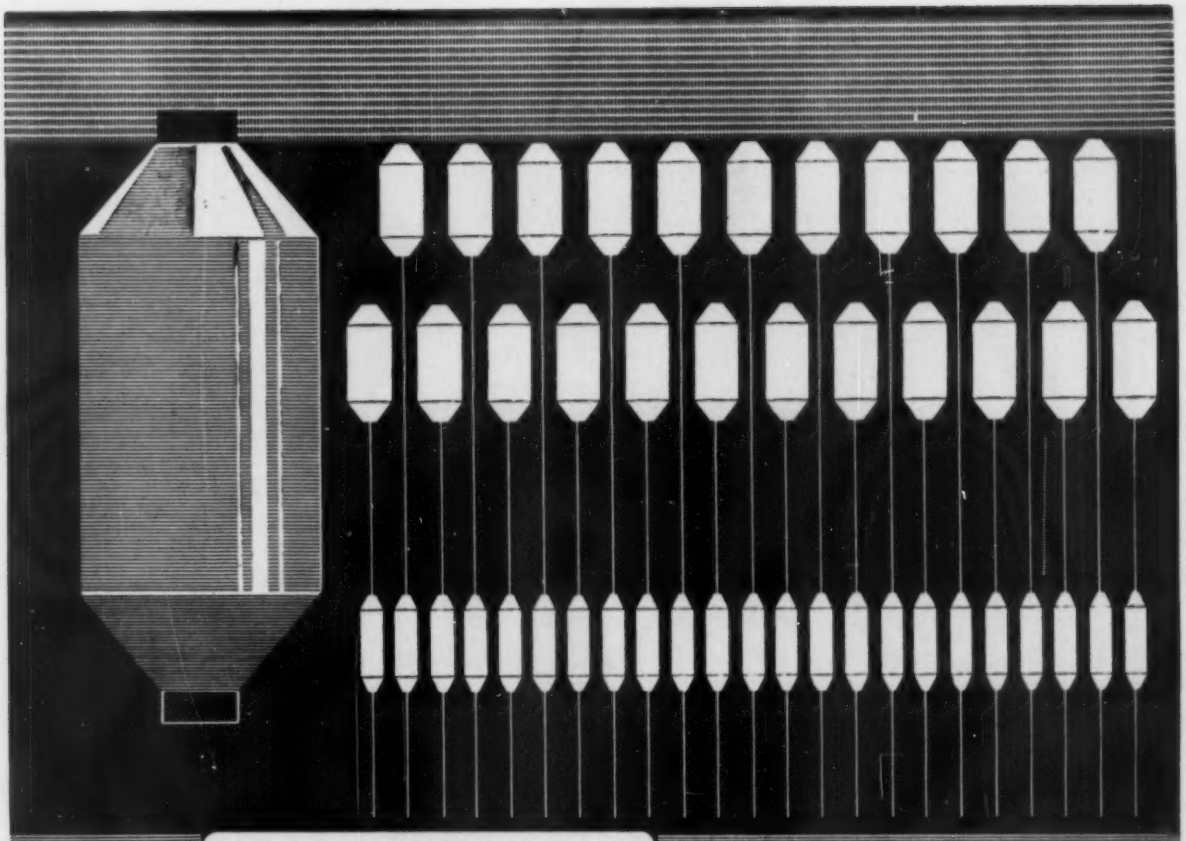

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of complete spinning plants for cotton, worsted,

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Subtle variations of soft, golden-country-life tones are currently coming to the fore.

To reproduce them on cellulosic fibers . . . with outstanding wash-and-light fastness . . . we recommend our Carbanthrene® Vat Dyes. Because of their uniform, fine particle-size, these superior, American-made vats disperse evenly to give you clean level results, consistent from batch to batch. Waste and redyes are minimized and dye yields are improved.

The Carbanthrenes listed below are among those presently proving most useful to dyers of cottons, rayons and blends.

For the newest brown shades on other fibers, whatever fastness and working properties are required, let our nearest office suggest economical formulations based on National® Dyes.

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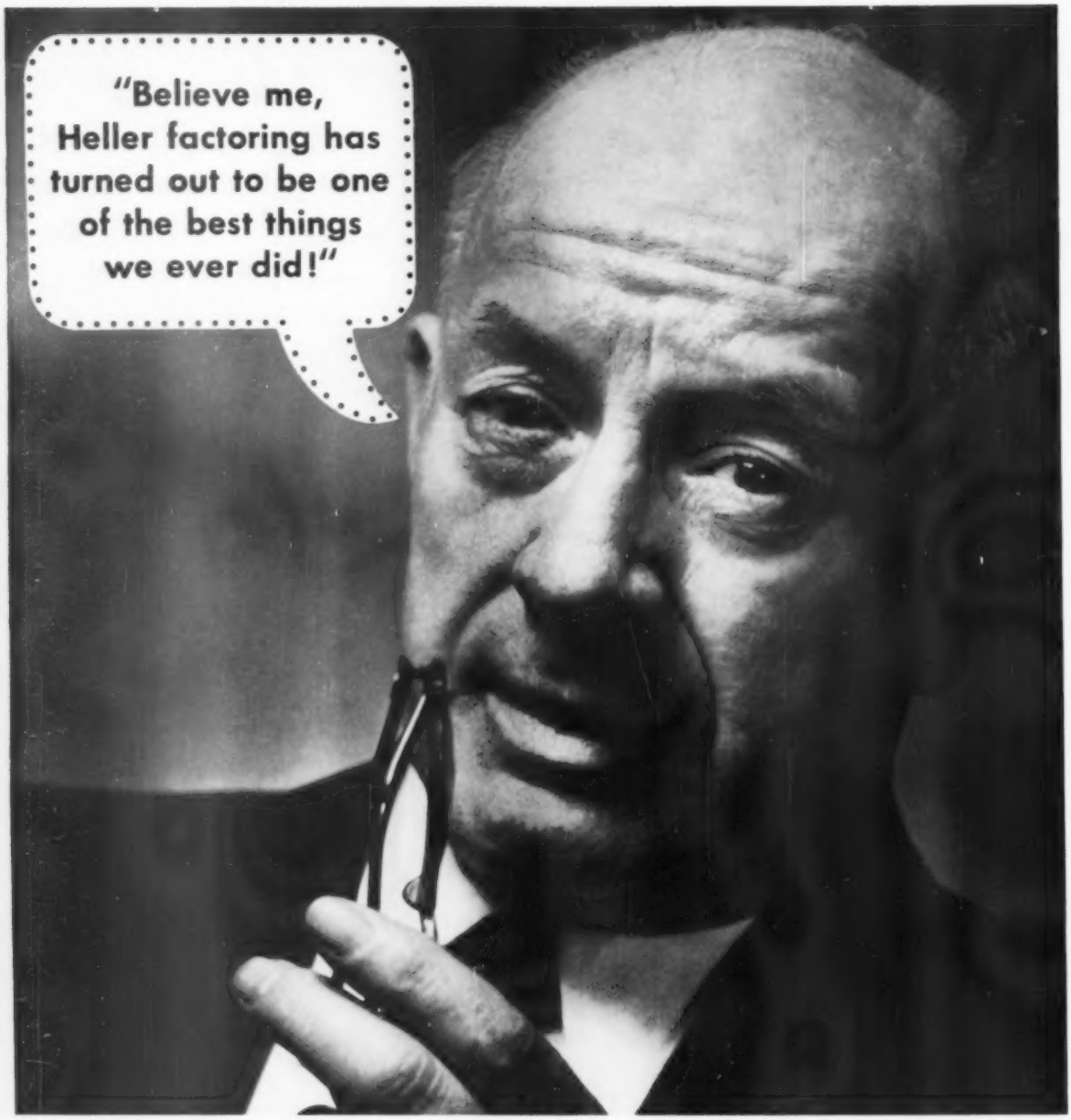

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Index of Textile-Manufacturing Activity
(Man-hours worked, adjusted for changes in productivity 1954=100)
1957
Jan. 108
Feb. 108
Mar. 107
Apr. 107
May 106
June 107
September Estimate 117
124 122 120 118 116 114 112 110 108 106 104 102 100 98 96 94
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
1957 1958 1959 1960

Retail Dip: Over Soon

Retail sales, a mainstay of the textile industry, have turned decidedly sluggish. The reason? Personal income is not rising as fast as it was in the early part of 1960. The worst, however, now seems over. Retail sales will continue to climb—although not excitingly fast—right through the first of next year. The sales of apparel and other textile consumer products will follow the gentle upward trend.

•

Don't discount a healthy upswing in new home building despite the disappointing performance of this sector right now. Easier money has not been available long enough to have had much effect on contractors. But with easier credit and a burgeoning population, where can home building go but up? And the impact of a rising level of housing starts on textile sales is pleasing to think about.

•

TEXTILE WORLD's monthly Business Indicators (right) paint an encouraging picture of the textile industry amid reports of downturns elsewhere in the economy. Textile exports, sparked by booming business abroad, jumped 20% in July while imports dipped about half that amount. Textile industry failures, frequently regarded as an advance indicator of textile industry conditions, show continued strength compared either with recent months or a year ago.

Figures of the Month

TEXTILE-INDUSTRY INDICATORS

	Latest Month	Previous Month	Year Ago
Textile World's Exclusive Index (chart above)	116.6	114.7	109
Employment (thousands)[1]	953.8	941.3	980.1
Production Workers (thousands)[1]	859.1	847.5	886.7
Weekly Earnings[1]	64.48	64.48	64.87
Hourly Earnings[1]	1.62	1.62	1.59
Weekly Hours Worked[1]	39.8	39.8	40.8
Production Index (1947-49=100)[2]	125	127	121
Wholesale Price Index (1947-49=100)[3]	96.1	96.3	95.7
Manufacturers' Sales (million $)[4]	1280*	1270	1256
Manufacturers' Inventories (million $)[4]	2670*	2700	2534
Inventories-to-Sales Ratio	2.08*	2.16	2.47
Exports (million $)[5]	147.6*	122.5	64.1
Imports (million $)[5]	100.1*	109.2	92.5
Stock Price Index (1941-43=10)[4]	27.70	27.49	20.21
Failures (number)[5]	3	5	5

NATIONAL ECONOMIC INDICATORS

Industrial Production (1947-49=100)[2]	165	166	157
Consumer Price Index (1947-49=100)[3]	126.6	126.5	124.9
Wholesale Price Index (1947-49=100)[3]	119.2	119.7	119.1
Civilian Population (millions)[6]	178.3	178.0	175.4
Unemployment (millions)[6]	3.8	4.0	3.4
Employment (millions)[6]	68.3	68.7	67.2
Personal Income (billion $)[6]	407.6	407.3	383.3

*July; otherwise latest month is August.

1. Bureau of Labor Statistics; 2. Federal Reserve Board; 3. Department of Commerce; 4. Standard & Poors; 5. Dun & Bradstreet; 6. Bureau of the Census.

NEWS and COMMENT. . . . . .

MILL PROFITS STILL RUN STRONG, BUT ROSY GLOW RUBS OFF OUTLOOK.

That was the look of things as September drew to a close. Take a look at profits reported since last month:

Thomaston Mills reports sales for the fiscal year ended June 30 at $40.7 million, up from $36.6-million a year earlier; profits at $2.9-million vs. $2.0-million a year ago. But President Julian Hightower warned: "The outlook for the next 12 months is not nearly so bright. Demand for goods has slackened and with it has come pressure for lower prices."

Kayser-Roth Corp. closed its fiscal year June 30 with profit of $5.6-million, up from $4.2-million a year earlier. Sales were $121.9-million, up 18% from the same period a year ago.

Opelika Manufacturing Co. predicts it will close its fiscal year on Sept. 30 with sales of $22.2-million (vs. $21.6-million last year), earning about $1.90 per share (vs. $1.82). For the three quarters ended June 30 the company reports earnings of $929,132 (vs. $839,584) on sales of $16.3-million (vs. $15.7-million). President C. L. Cohen said: "We've had a little downturn (in recent weeks) but not enough to really worry about. But where all our plants were on overtime a month ago, we're aren't working overtime now."

J. P. Stevens & Co. reports consolidated net sales of $124.5-million for the quarter ended July 30 (vs. $113.2-million a year earlier) and earnings of $3.4-million after provision for taxes.

Pepperell Manufacturing Co. officials told stockholders that the company's unfilled-order position improved substantially in the 10 weeks since July 30. President Brackett Parsons said business, though not so good as a year ago, is much better than four or five years ago.

Meanwhile, mill executives questioned by TEXTILE WORLD confirmed reports that a substantial number of mills are curtailing production in swift reaction to market performance (see page 35 of this issue).

Adding it all together and taking an outsider's look, Standard & Poors sees things this way: "Further moderate easing is possible over the medium term, but a steady flow of business should permit a relatively satisfactory production rate, particularly since inventories have not been overbuilt. Sales comparisons . . . are likely to fall moderately below a year ago. . . Still, larger total 1960 sales are expected for major mills . . . Growing diversification of integrated mills, along with close production control, should permit continued satisfactory earnings."

• • • "SHOCKING" IS THE WORD USED FOR THE LATEST DECISION ON IMPORTS.

The word appeared in a statement issued by J. M. Cheatham, president-elect of American Cotton Manufacturers Institute, after news that the Administration's Interagency Textile Committee had turned down a special Senate subcommittee's recommendations for textile import quotas.

Earlier, Seabury Stanton, chairman of the Northern Textile Association, also criticized the Administration's action and asked the Senate committee to call for a formal explanation of the action.

Adding their voice, executive committeemen of the National Association of Wool Manufacturers expressed disappointment at the government's failure to act on imports and to re-examine peril-point and escape-clause provisions and restudy textile machinery depreciation rates, as urged by the Senate subcommittee.

TEXTILE-MACHINERY IMPORTS ALSO MADE HEADLINE NEWS IN SEPTEMBER.

Representatives of the American Textile Machinery Association appeared before the Committee for Reciprocity Information in Washington to urge that textile machinery be removed from further negotiation under the General Agreement on Tariffs & Trade (GATT). ATMA spokesmen told the committee that penetration of the American market by equipment built overseas is attributable to price alone. Among other things they pointed out that American textile machinery makers are running at 60% of capacity and that employment has dropped 40% in the past 10 years.

Meanwhile, Joanna Cotton Mills revealed that it is negotiating with O-M Spinning Machine Co., Osaka, Japan, for purchase of 40,000 spindles to enlarge its fine-combed-goods capacity and is testing Japanese high-draft sliver-to-yarn cotton machines. There were rumors that other American mill executives as well were on the verge of buying foreign-made machines.

Elsewhere, at an open house marking acquisition of controlling stock of Saco Lowell Shops, A. H. Maremount, president, Maremount Automotive Products, Inc., said: "We anticipate an excellent position in relation to foreign competition... Saco sells some foreign equipment here. In turn, we have some manufactured abroad." Royden Walters, Saco-Lowell vice president, said: "Last year our computations showed that less than 2% of machines sold in the U.S. were foreign made. In some years we have sold 25% of our output in the foreign market." And D.F. Edwards, Saco-Lowell board chairman, said: "American mills want service, know-how in the manufacturers, availability of spare parts, and reliability of the manufacturer. They can get these only from an American manufacturer."

Meanwhile Robert Pomeranz, president, Roberts Co., said: "If lowest labor cost, highest pounds per spindle, best yarn quality and consistency, lowest maintenance cost, and greatest flexibility of production are what U. S. mills want, we can give it to them at a lower machinery cost. We can outproduce,outperform, and have lower labor costs."

WASHINGTON OUTLOOK . . . . .

The trade-policy battle is fizzling out as an election campaign issue. Despite statements by both candidates that foreign affairs will be the major battleground, the drive for votes has shoved foreign economic affairs into the background.

Kennedy talked to New England audiences about "protecting" local industries, including textiles. But he soon dropped the point. He was scheduled to tell Texas petroleum men that he favored tighter oil-import quotas, but advisers persuaded him to avoid the stand.

Nixon has yet to pinpoint his foreign economic policy views. In the Administration's new program of increased aid for Latin America, there is an implied offer of help for Latin American textile producers. But beyond generalities laid out in the inter-American economic "Act of Bogota," approved last month, Nixon has also skirted any precise program that might boost Latin American imports.

The cold political fact behind this strategy is that there is more voter ground to be lost than gained by taking either a frankly freer-trade or protectionist stand.

*

Government evidence today seems to point to a widespread feeling in much of industry that this isn't the time to buy capital goods. The preponderant view in Washington--and apparently in industry, too--is that a buyer's market is shaping up, but that it may not be until after the first of the year before it really develops.

Beginning in the first quarter of 1961, say government experts, a slowdown in equipment purchases will begin to be felt in the market. This slowdown will coincide with an over-all slowdown in the domestic economy generally, the experts believe.

But they hasten to add that the 1961 downturn--if any--will be of short duration, and not nearly as deep as the one in 1957 that followed two years of high capital-goods spending.

*

During the rest of this year, meanwhile, buying is expected to continue high--though not quite so high as predicted earlier. Over-all spending may top 1959 by 12%, instead of the previously estimated 14%. Textile firms, along with other soft-goods industries, are still buying 30% more than during last year.

*

Current signs of business softness don't mean a real recession is on the way, either in the last few months of this year or in early 1961. That is the firm belief of the Administration's top economists. If they did have fears of a sharp decline, they would be urging pump primers such as more defense spending, federal construction projects, and the like.

These economists are recommending against such moves. They reason that a tight-inventory attitude on the part of most businesses has kept economic activity below levels predicted last January. Therefore a "rolling readjustment" to a lower sales-to-inventory ratio is under way. But as long as consumer buying holds up--as it is doing--there can't be a real recession. Real growth will come, but this time not at the cost of higher prices.

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and VACU-PAK FLOOR SWEEPER

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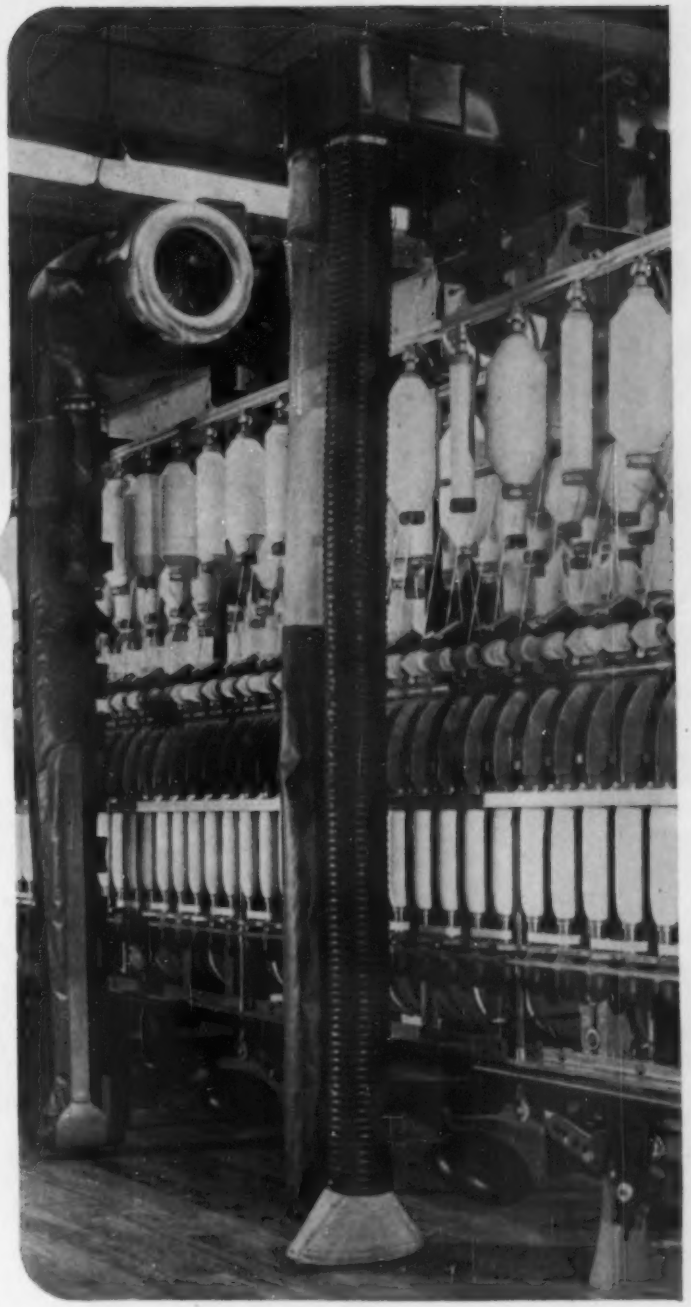

Sweeper automatically stops on contact—then automatically re-starts when free of obstruction.

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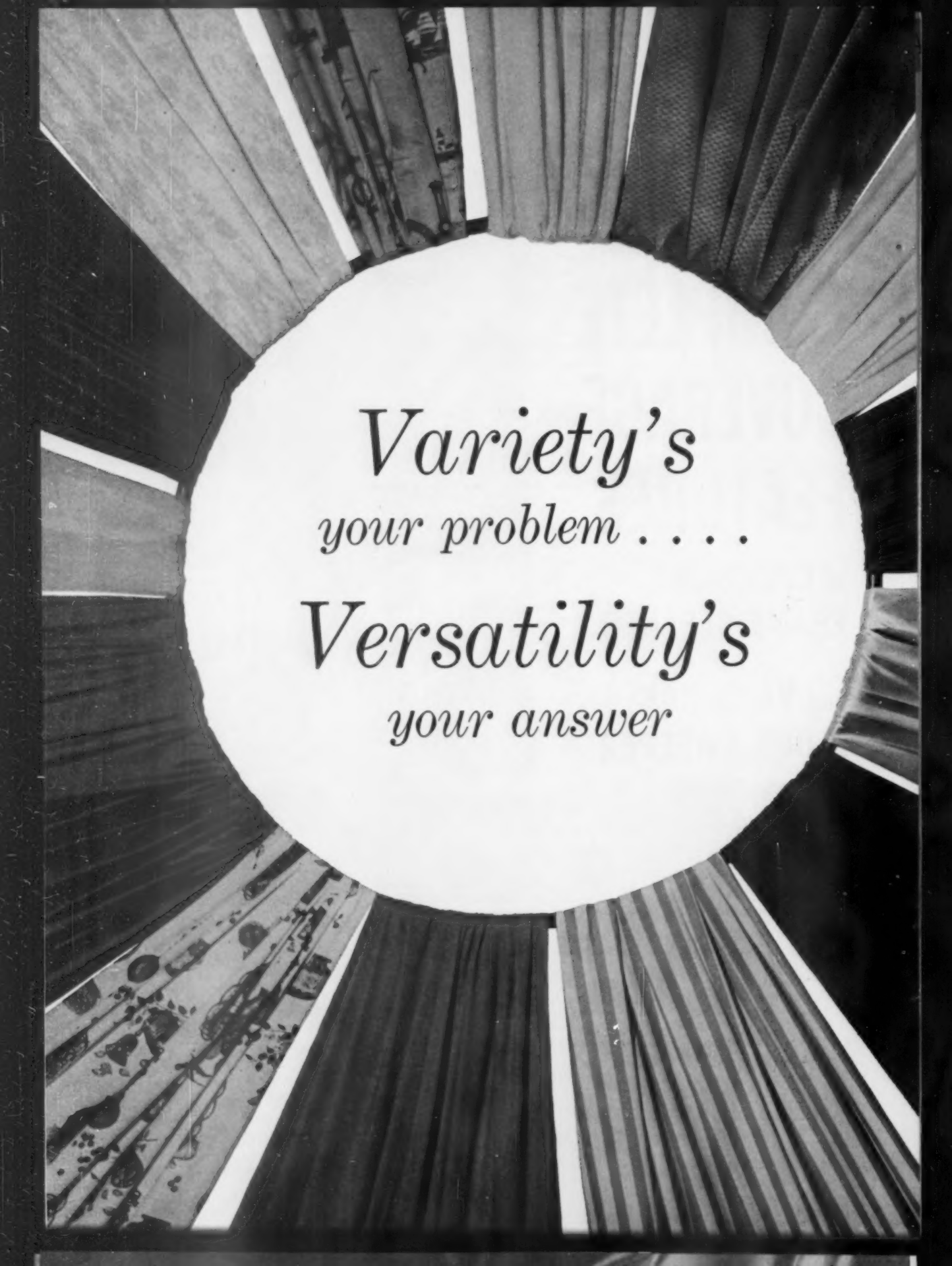
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The UNIFIL story is one of versatility and economy. It clearly indicates why leading textile mills consistently reorder UNIFIL Loom Winders. Call your nearest Leesona Sales Engineer — in Boston, Philadelphia, Charlotte, Atlanta or Los Angeles. Or write LEESONA CORPORATION, P. O. Box 1605, Providence 1, Rhode Island. Keep pace with your market with UNIFIL.

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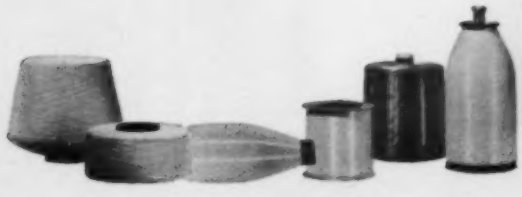

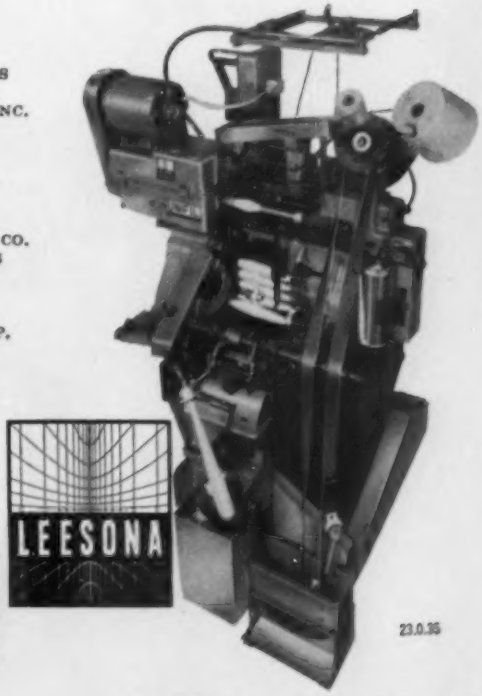

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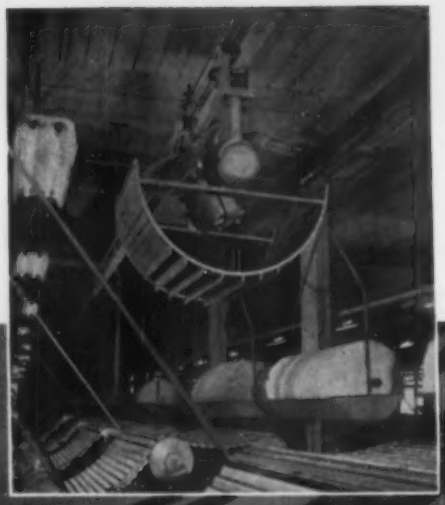
To the mill man who wants maximum overhead cleaning



You get maximum overhead cleaning with the Aero-Sweep Cleaner because:

- it cleans the objective more thoroughly with head-on air blasts at ½ the distance of other cleaners.
- it cleans all objects throughout cleaning cycle at predetermined frequency.
- only Aero-Sweep has an exclusive patented indexing feature which sets the cleaning pattern for any area, prevents lint accumulation on all surfaces.

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- it minimizes slubs and gouts, improves quality of product.

For details, see free illustrated Bulletin 21A. Clip coupon to letterhead and mail today.

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If we had some gold medals . . .

. . . we'd like to pin them on some textile-manufacturing executives we know about. Why, just at this time? Because these men are realistic. Because they're courageous. Because they're using sound business judgment. And because, in shouldering the very first responsibility of management men—protection of profits—they have become a shining example for their fellow executives in the industry.

The management men we're talking about are the ones who have fashioned ways to sense the first symptoms of change in market demand—and who today are reacting swiftly to those symptoms by adjusting their production schedules. (For examples of how they are reacting, see the news-interpretation article on page 35 of this issue.)

In our opinion these adjustments are quite different from the panic that used to seize the textile industry with predictable regularity, feeding on itself and bringing price disorder and a flock of bankruptcies. Today's adjustments, in fact, are disguised to forestall panic. They follow a carefully calculated course of action that shows a new maturity, a new vigor, and a long-needed sensitivity among textile management men.

Here's how we see the adjustments being made today in production schedules:

1. A substantial fraction of the industry has resolved to sell at a profit—or not at all. No more bulging warehouse inventories. No more distress selling. No more bankruptcy petitions. Instead, a sensitive balance between supply and demand—and a firm price structure. If this resolve to sell at a profit or not at all is good medicine for a substantial fraction of the industry, it's good medicine for the whole industry.

2. Market research, long neglected by textile manufacturers as a guide to production schedules and prices, is proving today that it works for textiles just as well as it does for autos, steel, soap, and breakfast foods. If the industry learns this lesson, we look for market research to play an increasingly strong role in this industry, from now on. Good thing, too.

3. The pressure is on for cost improvement. It's high—and going higher. When demand outruns supply, as has happened in recent history, a mill can barrel along on a 3-shift, 7-day schedule with little thought of cost. But let supply outrun demand and let prices falter. Then the profits squeeze is on. It's on today. And that's why we expect our medal winners to step up the pace of cost improvement by buying more efficient machines and equipment, modernizing their plant services (material handling and electric power, for instance), looking for higher quality in their supplies and raw materials, setting up cost-improvement and work-simplification programs, updating paperwork and office procedures and equipment, seeking opportunities for further mechanization and automation, looking for new and better instruments and controls.

4. If these industry leaders can react swiftly and effectively to a dip in the market, they can react with equal swiftness and good effect when the demand curve turns upward again. Why? Because the very tools and skills that flatten out the dip are the same ones that provide power and speed for the upward surge. Today's disciplines are slimming down our medal winners to their best fighting trim. Come the upturn, and they'll be in shape to move fast—and win more gold medals.

Come November 8th . . .

. . . and you face another Election Day. It's the day when you claim the rare privilege of the free ballot—and obey the stern mandate to make democracy work by expressing your will.

We will not suggest which party or candidate you should vote for. But we will urge you to remember that you, your friends, your associates, your employees, and other millions across the land make up the will of the people. What's more, we suggest that it's the will of the people—all the people with all their differences—that makes our nation great and strong.

That's why it's important for you to cast your ballot on Election Day—to cast it as solemnly and intelligently as you can, basing your choice not on narrow self-interest or prejudice or campaign trivia, but on the good of the nation. And if it's important for you to cast your ballot, it's equally important for others to cast theirs—and for you to see that they do. That's the way the will of the people comes up loud and clear.

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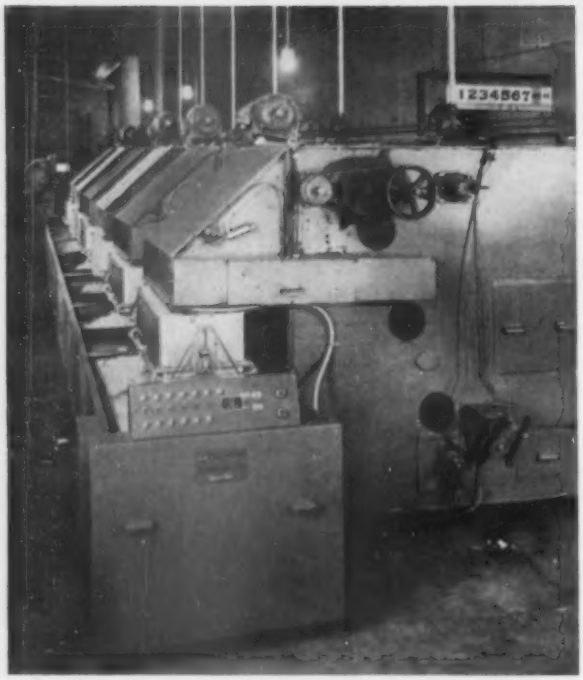

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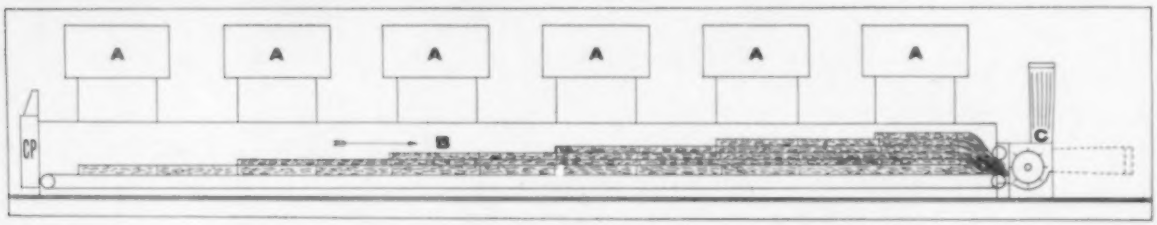

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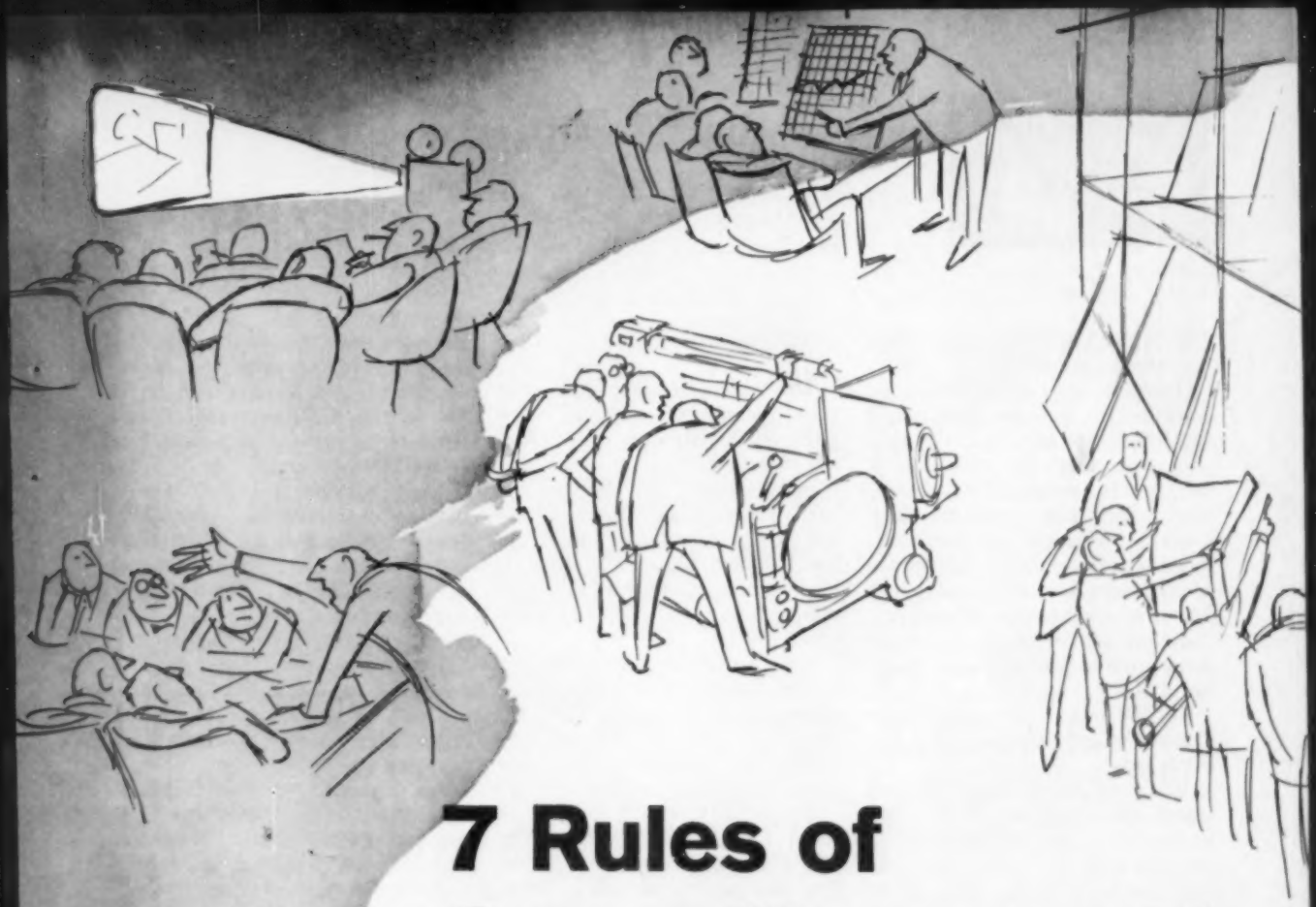
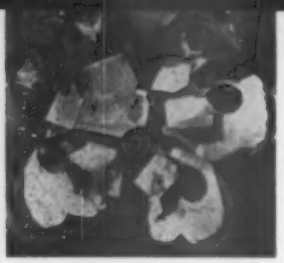


7 Rules of Committeemanship

You've heard a lot of talk about committees —some of it bad, most of it good. What about 'em? What opportunities do they provide for you to shine? To broaden your outlook? On the next three pages, you'll find helpful hints from an expert—hints that you can put to use right now.

By Auren Uris
Research Institute of America
New York City



Successful Committeemanship

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DON'T GET LOST in all this loose talk about committees.

True, it may make interesting listening. For example, some people say committees are a waste of time —a sign that an executive is shirking his responsibility as a decision-maker and problem-solver. Cameron Hawley, an executive-turned-novelist, told the American Management Association not so long ago that management is suffering "bureaucratic corpulence," in which it takes ten men to make one man's decision.

On the other hand, many management experts feel just the opposite is true.

While the debate rages, one fact stands unchanged by all the talk, unassailed by all the fine-sounding rhetoric, and it is this: The committee is here to stay. With all its faults, management by committee is a necessity. As the problems of management become more complex, and involve greater sums of money, the decision of just one man may be either too risky or too demanding. A company needs the consensus that only a group of its best people can provide before going ahead with costly or large-scale schemes.

PROVING YOURSELF

The thing you should remember about a committee set-up is that it gives you a chance to prove yourself outside the framework of your regular activity. For the manager who harbors a sneaking suspicion that his job is too limited to permit him to shine, a chance to serve on a committee presents a fresh opportunity to test out his managerial muscles.

Even for the executive who has not felt hemmed in by his job, committee activity affords the chance for enriching experience, gained by challenging assignments and new relationships with colleagues.

But to find your way to the benefits of committee work you must be very alert. You must skirt the pitfalls and take advantage of unexpected opportunities that come your way. For example, one middle manager at a prominent, integrated textile corporation sat on a committee that spent six months pondering purchase of a new loom attachment. By the time the group decided to recommend purchase, the attachment was obsolete. At another large company, by contrast, the sterling committee performance put on by a young assistant plant manager resulted in his elevation to a fine new post because the young manager proved he could get along with and lead others.

Every company has its own approach to committee operation. Some organizations go scarcely a day without setting up a new group of some kind. But in other firms, committees come into being less frequently.

In some companies, committees are set up for a variety of reasons, not all of which carry equal opportunities. Typical committee purposes are to investigate, to develop, to plan, to decide, and to take action. Some firms form committees for only one of these purposes, and generally speaking, the more active the purpose of a committee, the more likely that its members will make names for themselves as a result of committee work.

Among individual top executives you find considerable variation. The executives who find committees effective tend to create them freely. Those who take the dim view set up a committee only when existing staffs can't cover the ground.

7 Rules that will Make You a Winner

So you've been tapped to work on a company committee. These seven rules will help you give the most —and get the most —in your assignment.

1. Try to get on "do" committees. Avoid the dead-enders. Some experts may quarrel with this suggestion by pointing out that there is no clear-cut line between "do" and "do-nothing" groups.

"It all depends," they will say, "on the members of the committee. A dynamic group adds up to a committee that gets things done. An apathetic group makes for a committee that never gets off the ground."

Granting that there is a certain amount of truth to this contention, if you probe deeper, you find that certain committees, because of their objectives, are predestined to get nowhere. For example:

The president of a medium-size textile-machinery plant confides to his assistant, "Some day we're going to have to move to larger quarters. Might as well set up a group to look for a new location."

An executive in the know in that company would realize that because of the company's financial situation, such a move, desirable though it may be, could not take place in less

than five years. The members of the "New Plant" group would be very likely to find themselves involved in an investigation that would be unable to reach any firm conclusions, or take action. Another pertinent fact. When the company *was* in a position to consider such a move seriously, both the available properties and company needs might have completely changed—canceling out the previous investigation.

On the other hand, the "do" committees are marked by the immediacy and importance of their objectives. A group set up to develop an urgently needed product or line to meet competition; a group to consider the best investments for surplus funds; a group whose purpose is to discuss merger possibilities with another company—these are examples of committees not likely to get soft from lack of exercise.

2. Volunteer for assignments that carry benefits for you. In some cases you have the chance to select the committee to serve on or, being on the committee, you have the opportunty to pick a particular assignment. With this choice in mind, there are three selections that can lead you to definite advantages:

• *The area in which you want to develop.* Let's say you are a production executive, and you've been wanting to learn more about your company's marketing activities. An assignment that would make it possible to investigate the marketing function would clearly have a payoff.

• *The area of the company's future growth.* Assume your company is considering diversifying. That could mean anything from going in for products that parallel the present company product to investigating completely new products or different types of operation.

In whatever direction the change may lie, activity in a committee that would make it possible for you to familiarize yourself with the future nterests of your company would give you a desirable edge.

• *The area of your best capabilities.* In some instances your wisest course may be to take on assignments that play up your skills.

If, for example, you are a good organizer and there is a need for someone to take over this function in a committee, your work will show up to good advantage. Interestingly enough, the same skill that might be accepted as a matter of course in your regular job may well bring you considerable recognition in this new context.

3. Consider your fellow-committee members your own "audience."

"How is my boss going to know if I do a good job?" a young executive lamented. "Everything we do is confined by the four walls of our meeting room."

That complaint overlooks the fact that fellow members of your committee are usually a powerful sounding board.

Every executive is familiar with the potency of informal communication channels. Word-of-mouth reports over the lunch table can score for you as certainly as headlines in the company newspaper.

The word does get around. But don't let that simple statement blind you to the fact: The thing that people talk about is the significant event, the outstanding circumstance.

The informal channels will buzz when someone makes a crackerjack speech, when someone puts on a dramatic presentation, when someone's clear thinking has struck the group like a sudden revelation.

At the same time, performance need not be dramatic. You don't have to make a "grandstand play" to make an impression. Many an executive has made a reputation for himself by consistent, mature, and solid thinking. It is the executive who speaks up and presents his viewpoint clearly and emphatically who emerges as a recognizable and impressive figure.

Probably you yourself have witnessed with admiration the mature executive who unhesitatingly states his views but has no difficulty in acknowledging the validity and value of ideas opposed to his own. He weighs them both.

Whatever your particular forte, here is a chance to show your stuff. If you're quick on the draw, incisive in your thinking—good. Let these qualities become obvious to your fellow committee members. If your thinking is slow, methodical, and thorough—good. Let these virtues become evident. The greatest loss is to let your light be hidden under a bushel of silence.

4. Take on the leadership. You have to think this one through. Leadership of the group may be up for grabs. Should you take it on or not? Several factors help you decide. If the objectives of the committee have particular appeal for you, it's probably advisable. But there wouldn't be much point in heading a group whose objectives didn't interest you.

In some cases a realistic decision comes from the answer to these questions: What do I gain if the committee is successful? What do I stand to lose if it fails? The answers are seldom cut and dried. All kinds of elements must be considered:

• Are the other members of the committee the kind of people who will cooperate with you?

• Will you have the backing of the top executive under whom the committee functions?

• Do you feel your personal and professional qualifications will help you sustain your leadership effectively? And a simple but vital point—

• Can you spare the time?

It's only after you have considered as many of the relevant factors as possible that you can decide whether it would be wise to volunteer to head up a particular effort, or turn down the responsibility.

5. Know how to get "balance" in a committee. You may be in a position to set up a committee yourself. And even if you're one of an appointed group, it's still important for eventual success for members to know what makes a well-rounded team.

No one has yet come up with a perfect formula. But here are some of the kinds of talent that can make the difference between success and failure:

• *The sparkplug.* Usually he's the leader or committee head, but not always. Sometimes—particularly

. . . Turn the page

Successful Committeemanship

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when the committee head is one in name only—it may be his assistant or right-hand man. Function of the sparkplug is to trigger action, point the way, keep nudging the committee for results.

• *Resources person.* Someone in the group must know where to find what the committee needs to function. It may be data, information, particular skills and so on. This ability doesn't mean that the individual must have everything at his finger tips. But it does mean he either knows where it is, knows where to look, or can arrange to supply what's needed.

• *The idea man.* He is the one who frequently supplies answers to such questions that start off, "But what will we do if—?" He will suggest a plan of action; a solution to a problem; will help develop alternatives in making a decision.

• *Analyzer.* He is the manager with the dissecting mind. He can look past the facts to the implications. He can put 2 and 2 together and come up with a sharp, unequivocal 4. He is the one who can anticipate problems before they happen and thus make it possible to avoid them altogether.

• *Fault finder.* He may not be very popular but he is likely to keep you out of a lot of trouble precisely because of his negative approach. He becomes a pre-tester of ideas. Frequently he will probe and pick flaws in a plan of action. While what he says may not be welcomed by many, it often happens that his native pessimism may help offset over-optimistic expectations. The wise committee head can find in this "No" man a neutralizing force that will keep unrealistic enthusiasm from running the train right off the track.

• *The detail man.* Committee work often involves detail. This is the place where people with checklist minds shine. The man with the patience or talent to check through the details is often the best insurance against costly oversights, sketchy planning, going off half-cocked.

• *The doer.* He is the man who will take the time and has the energy to follow up on the scheduled course of action. Absence of a doer can make a committee ineffective. Look for a man with a passion for action —one who will translate talk into accomplishment.

One further point on the "balanced" committee: Don't take the above list to mean that every committee must have numerous members among whom are a sparkplug, a resource person, and so on. One executive may embody two or more of these qualities. The point is that committee work requires the functions mentioned and they must be represented one way or another in your group.

6. Sharpen your objectives. Many experts say a major reason for committee weakness is that no one has clarified exactly what the group is to achieve.

Vague objectives make for inaction. But specific goals breed fruitful activity.

Notice different incentive value in these two objectives:

A. The purpose of the committee shall be to look into the competition we are facing.

B. The purpose of the committee shall be to report to the president by January 1:

• Number and size of the companies directly in competition with our two main products;

• Where we stand in relation to this competition in share of market in the past year;

• To what extent foreign imports are affecting our sales.

The phrase "sharpen committee objectives" may be harder to accomplish than the words indicate. It often happens that the first and major undertaking of a committee is to examine, clarify, and spell out what its goals are.

At some point before the group starts operating, this point must be clarified. Failure to do so is bound to result in confusion, wasted efforts, and eventual paralysis.

7. Use your responsibility to make contacts. One of the virtues of committee work is that it takes you outside your regular job. You get opportunity to work with colleagues you might not otherwise come in contact with—or work with them in new relationships.

Some committees require you to work outside the company confines. This can mean still broader horizons, plus a chance to gather information and experience not available within the company.

Such outside contacts may not come automatically. But it often happens that once you think in terms of the question, "What contacts can I make that can help fulfill my committee role?" you can broaden your activity to your gain, and your company's.

Reprints of this article are available at 35¢. Write to Reader-Service Dept., Textile World, 330 W. 42nd St., New York 36, N. Y.

New Goal Today: Profit Insurance

Mixed with all the omens of a flat textile market comes a sign of hope this month—a sign that the industry is finding a way to deal with the old-time feast-or-famine pattern of operations.

The payoff will be an industry that continues strong enough to smooth out the bothersome cycles that have been so damaging to management plans in the not-so-distant past.

The hopeful sign is this: The industry is curtailing production before inventory pressure causes a round of indiscriminate price cutting. For the first time, it seems, the industry is showing the quick, sensitive understanding of market conditions that has played such a large part in the high profitability of the concentrated auto and steel industries for many years.

FOUND: A NEW REFLEX

Despite the fact that the textile industry is predominantly an industry of many medium-sized producers, it is reacting today as if it were as highly concentrated as the auto, steel, or electrical equipment industry. It has learned a valuable lesson—and it is now applying what it has learned.

To be specific, look at the decision on the part of many fabric manufacturers to curtail production by putting looms on shortened schedules. In the past, adjustment to slackening demand has been far too slow. The retailer has always been first to react, and then the garment maker. Next would come the converter, and finally—often when it was too late—the mill would react. The typical mill would go on producing until inventory all but pushed the roof right off the warehouse. Inevitably, price cuts followed.

Today the industry seems to have grown itself a new set of reflexes—quick, sure, and reliable reflexes—that now have gone into action before headlong price-cutting siphons off profits, forces mill closures, and inhibits industry progress.

Items, as of mid-September:

- Durham Hosiery Mills has its full-fashioned hosiery machinery running just three days.
- Swift Manufacturing Co. is operating on a shorter work week and has shut down some of its looms.
- Burlington Industries has put 12,000 looms on a five-day schedule.
- Dundee Mills has put three mills in Griffin, Hartwell, and Toccoa on four days.
- M. Lowenstein & Sons has put 7,910 looms on five-day production.
- Woodside Mills has put 3,600 looms on short shifts.
- Indian Head Mills is running 1,900 looms on five days and is considering going to four days.
- Cone Mills has curtailed production, with four-day production in some plants.
- Denison Cotton Mills has made a 15% reduction in hours per shift.
- Sherman Manufacturing Co. has put duck production on a five-day week.

These are only a few of the dozens of examples of the new trend.

TODAY: FORESIGHT

Mill executives seem almost ashamed to admit cutbacks, despite the obvious good sense of curtailment. But there are some who are not hesitant about explaining their reasoning: "It's a great awakening," one leading cotton mill executive says. "The industry just isn't going to be caught with big inventories and be hurt in a price swing." He goes on to say: "This is the first time it's happened. There have been signs of control over the past two or three years, but never as widespread as this. The apparel manufacturers and the converters are usually the first ones to cut back. But this time the mills aren't going to take the shock for the whole industry."

Speaking to the same point, Burlington Industries Chairman J. Spencer Love says, "We have made and will make moves that are in line with an increasingly widespread determination in the industry not to go back to the old days of violent cyclical swings."

Trade association observers are also aware that something unusual is afoot. Says Lee Parsons of the American Cotton Manufacturers Association, "It appears to us that mill management men are reacting a little faster than they have in the past to a potential slump. It appears they aren't producing for inventory."

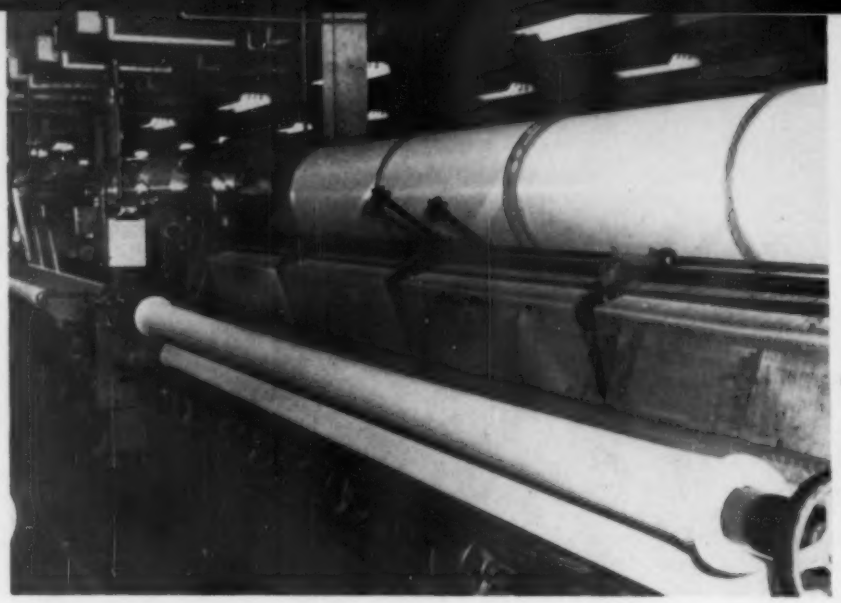
Ray Bell, president of the American Cotton Textile Merchants notes the change also. He says, "This is a quicker reaction to the market than in the past. In adjusting to market demand, we have been slower than either autos or steel. We've operated at high capacity long after the market started to decline . . ." He adds: "The faster the adjustment, the quicker you'll get over the decline. Two things I've advised: Don't take forward business at a loss and don't produce mill products for warehousing."

COMING: THE BIG QUESTION

The question now is whether the industry will hold to its policy. If it does, it will avoid a market glutted with low-price goods. At the same time, mill management may succeed in forcing the hand of the hesitant buyer.

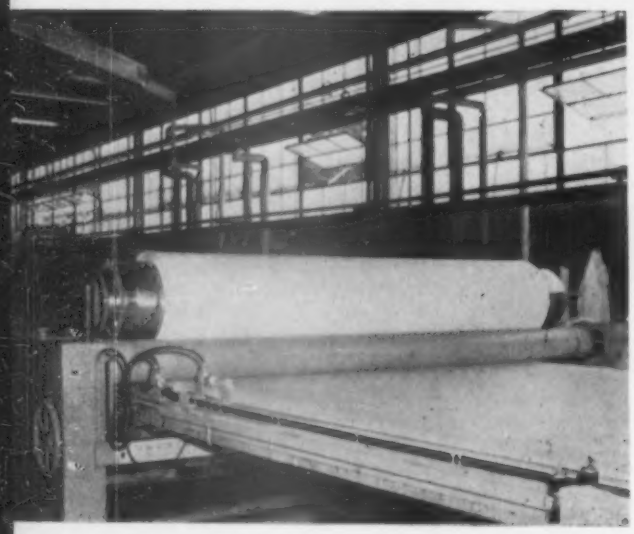
If the industry does not succeed in its new campaign, it won't be for lack of trying. In fact, it now appears that as a result of the increasing sensitivity of the textile industry to market conditions, things may never become bad enough to use the word "crisis."

For a crisis-weary industry, that prospect is welcome indeed.—*The Editors.*



WARP KNITTER operates at 800 courses per minute. The 30x42-in. beams hold over 60,000 yards of 40-den. acetate yarn.

WET-BATCHING by the McCreary system: Fabric is wet-out, straightened, tentered to width, and batched on a perforated beam.



How One Mill Keeps Growing 15% a Year

BOLD VERSATILITY—those two words describe Milco Undergarment Company's approach to production problems and opportunities. Take the new 110x220-ft., $150,000 plant addition at Bloomsburg, Pa., for example.

The new addition makes Milco a completely integrated company—from yarn right through packaged product. In this new plant addition (and in the adjoining buildings) there's a complete range of knitting, dyeing, twisting, and other equipment.

The company uses plant-designed equipment in the knitting room for material handling. The knitting room itself is built underground to keep atmospheric conditions as closely under control as possible. By such means Milco is making the most of its unusual position as a fully integrated knitting operation.

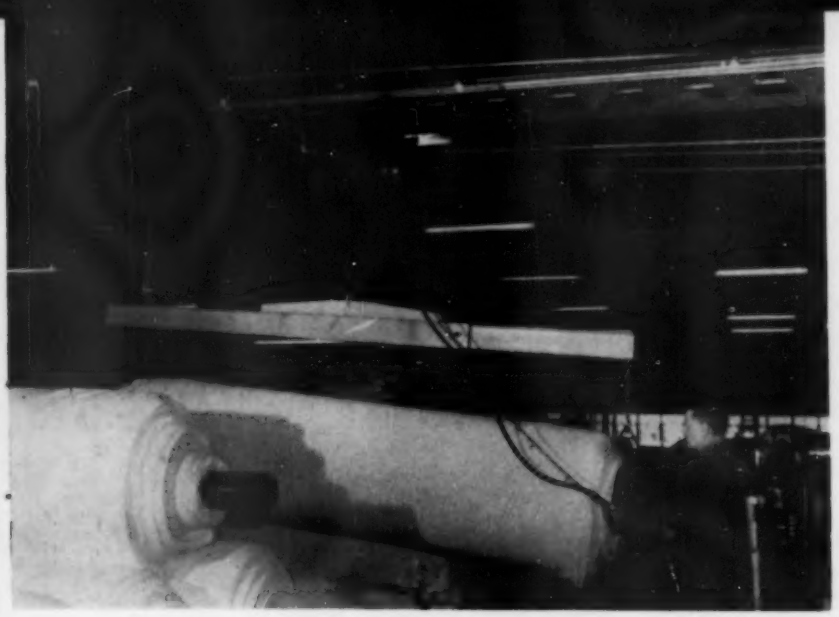
The company got its start in 1921 as a manufacturer of women's lingerie. Step by step since then, the company has worked farther back into manufacturing. This way, management has gained control over quality standards, stocks, and production costs. Bonus benefit: new flexibility in production.

EXPANDING BY STAGES

The tricot operation started in 1947 with four Aveco (Warner & Swasey) 168-in., two-bar, warp-knitting machines. By 1954, the company had 36 of these machines operating on a 5-day week, three shifts. During the past 2½ years, Milco has replaced 12 of the Aveco machines with high-speed Reading units (Textile Machine Works). These knitters operate at 800 courses per minute. They produce as much yardage as the remaining 24 machines.

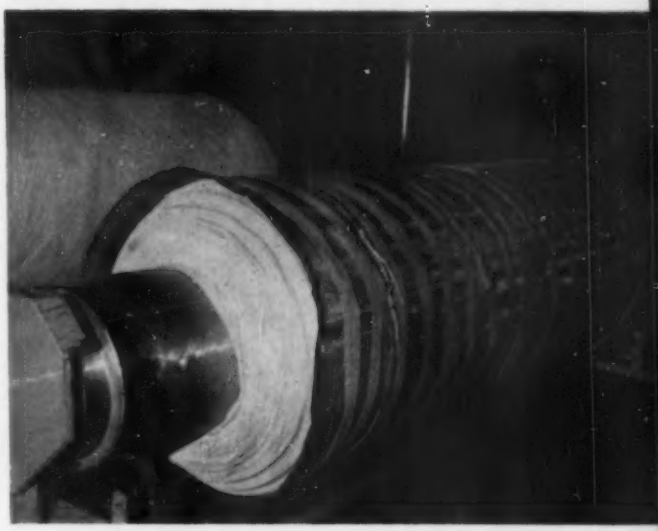
Most of the tricot fabric is 28 and 32 gage, using a 1-to-1 beaming ratio. The new 30x42-in. beams will run for two weeks on a three-shift operation.

The fabric is doffed in 150-yd. cuts. A motorized, portable doffer rolls the fabric full width onto thin-



OVERHEAD HOIST handles 2,200-yd. pre-batched roll of tricot fabric. The system reaches every part of the dyeing and finishing room.

STAINLESS-STEEL GIRDLE is tied on with cotton tapes. Girdle eliminates the fabric cover that would pick up dye, also holds the roll of fabric.



That's the record for the past five years—fast any way you look at it. It's the result of integrated operations—integration that began with finished products and moved backwards step by step toward raw materials. Payoff: control all along the line—quality, production schedules, and deliveries.

walled steel tubes. It takes only one person to operate it. The full-width rolls are used during inspection and the initial batching in the dye house. Running the knitting room today takes only three patrollers and two fixers. The high-speed knitters are equipped with central lubrication and an automatic beam let-off. The central lubrication reduces the chance of getting oil or grease stains on the fabric. The geared let-off accurately controls the rate at which the yarn feeds from the beams.

Such careful control maintains the same course size and the same fabric yield from the beginning to the end of the warp. This geared let-off, combined with new acetate yarn finish, means greatly improved quality. For example, the recent production record on one machine showed only one defect in a series of 2500 racks (480 courses per rack) or approximately 700 yards.

HELP FOR QUALITY

Big aid in quality control is an electronic cloth scanner (Appalachian Electronics Co.) on each high-speed machine. When the scanner spots a break or defect, the machine stops automatically and a red signal light flashes. The scanner limits any defect to 3 inches. Sensitivity is adjustable, so that if a few filaments on one yarn break, the machine will stop.

The knitting room is completely air conditioned and stays at a constant 80 F., 60% rh.—conditions that have proved best for tricot knitting. This room is below ground, with the ceiling (floor of the office) at grade level. This way, the earth forms a natural insulation that reduces the effect of extreme outdoor temperature changes and makes air conditioning easier and less expensive.

About half of the tricot fabrics Milco produces is acetate in 55 and 40 denier. The remainder is nylon in 40-, 30-, 20-, and 15-denier, with the finer fabrics being used for pleating and embroidery. The knitting yarn comes from the pro-

ducer on 30x42-in. or 21x42-in. beams. A single-bank creel produces special warp constructions that are not available on producer's beams.

HANDLING MADE EASY

Fork-lift trucks throughout the plant are the muscle for most material handling. The finished product, dyestuff barrels, yarn cartons, and knitting beams are all palletized for ease of handling. The exceptions are the long, 168-in. cloth rolls used in the knitting room and the dyehouse. These rolls are handled by wheeled trucks. An overhead power hoist is used in the dyehouse. One-hundred-fifty-yard rolls are batched into 1,100-lb. lots.

In addition, Milco has designed and built a hydraulic truck to its specification. The truck has a padded cradle that rides on a vertical track. It's operated manually by a hydraulic cylinder. The base is wheel-mounted for mobility.

The 30x42-in. beams weigh over 500 pounds. In most mills a knitting room is equipped with overhead hoists only. These hoists handle upper and lower beams, and an operator has to remove the upper beam to provide access for replacing the lower beam. At Milco a 1-to-1 warp-yarn ratio is used. This means that at times the bottom beams run out before top beams. By using its special hydraulic truck, Milco can replace the bottom beam without removing the top beam.

The dyehouse (completed in 1954) is laid out on a straight-line pattern to minimize material handling. The dyehouse's big advantage: It dyes only a few types of goods. Payoff: simple handling, and almost identical processing from one lot to the next. Good planning makes the dyehouse layout oustanding. There's no backtracking. Power hoists handle the heavy loads. Hoists are set up so they'll reach any part of the dyeing and finishing area.

All goods come to the dyehouse in thin-walled steel tubes. Tricot handled this way requires less storage space and is in better condition for dyeing than the bundled-and-bagged goods so often seen elsewhere.

Before the goods are put in the dyeing machine they are wrapped in a stainless-steel mesh cover, which is secured with cotton tapes. This type of cover eliminates the cost of cotton wrappers and does not pick up color, as fabric wrappers do.

DYEING THE FABRICS

Milco dyes both for its own production and for other plants. The usual dye lot consists of 1,100 pounds of goods. The lot is first put through a McCreary batcher that winds the goods on the perforated beam (used in the Burlington dyeing machine). In the McCreary system, the goods run through hot water at full width and are then tentered and batched as a continuous operation. This primary treatment helps set the courses and wales of the fabric and more or less predetermines the finished width.

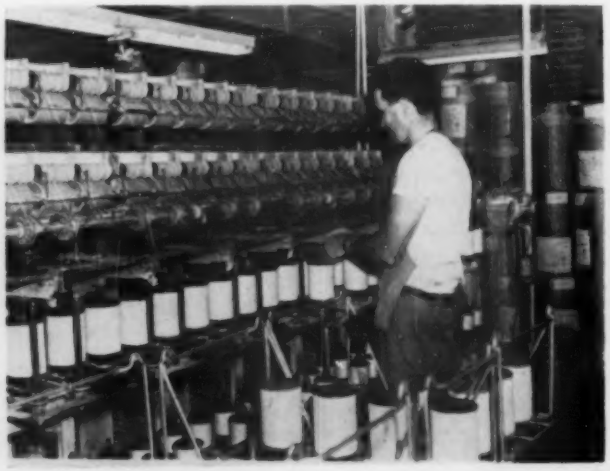
Milco uses disperse color for acetate fabrics and for the lighter shades on nylons. For very bright shades, Milco prepares goods by scouring and bleaching in one bath with a nonionic detergent and sodium perborate. Otherwise, scouring and dyeing are done in one bath. The bath is set with detergent and brought to 120 F. Then the well-dispersed dye is added and the temperature is raised to 180 F. Dyeing usually takes about 2½ hours, after which a power rinse is given at 120 F.

A fresh bath with a cationic softener adds the finishing touch. The load is then hoisted out of the dyeing machine and set up on the vacuum extractor, where excess moisture is removed.

Milco uses a single-pass Famatex tenter to dry the tricots to width, and, if it's nylon, to stabilize the fabric. The drying chamber compartments provide different degrees of heat under automatic control. Steamheated air does the drying job. Electric boosters in the middle area provide the 425 F. temperature

DYE TUB used on the Burlington systems is stainless-steel construction. For light shades on tricots, the dyeing cycle averages 2½ hours.

RUBBER YARN used as warp yarn for elastic tape gets special covering. The 36-gage rubber core is covered with cotton and acetate yarns.



necessary to set nylon goods. The tenter has a pad so that goods requiring a finish other than that applied in the dyeing machine can be handled in one run.

If the goods are going to Milco's own cutting and sewing operation, they are sent along at full width. But goods that are dyed for outside customers are doubled and rolled for shipment.

The dyehouse is light, airy, and clean. This means good working conditions and clean goods. With a large proportion of fabrics finished in white and pastels, cleanliness is important, particularly in lingerie.

DOES EVERYTHING

Over the years, as part of its planned integration, Milco has added equipment to produce all the materials and accessories required for the finished product.

Embroidery—The Berwick plant (opened in 1930) produces Schiffli embroidery. Three 10-yd. embroidery machines run on full-width fabric and one 10-yd. machine does frame work. The full-width machines embroider two 120-in. wide nylon tricot fabrics at one time. The frame machine embroiders garment panels for specialty items. There's nylon thread in all the garments. Milco twists 70-denier nylon direct from the pirn, producing 2- and 3-ply thread.

Elastic tape—With the production of 40,000-doz. items per week, the elastic-tape requirements are about 1,000,000 yards per week. To meet these needs 40 C & K narrow-fabric needle looms are in operation. These looms are designed to produce two tapes at once. They operate at 900 double picks per minute. Elastic tape comes off in ¼- to ½-in. widths. Acetate yarn is the filling for the elastic web. Milco twists this yarn direct from the producer's package with both up and down twisters. The warp is rubber-covered yarn. Milco produces its own yarn, using two H. A. Arnold machines. The core is mostly 36-gage rubber.

Cutting and sewing—The cutting room has four 120-in.-wide cutting tables. Each is 100 feet long. The fabric is laid full width 180 layers high. Patterns are marked on paper and 3,000-doz. garments are cut at one time. The average production is 40,000-doz. garments per week on a 5-day schedule, 8 hours per day.

The sewing room, the latest plant addition, is spacious and well lighted. It provides excellent working conditions for the operator. The sewing operation is a progressive-bundle system. Work starts at one side of the room and progresses in a straight line to the other side, where the finished garments are inspected and packaged.

Packaging—The recent trend in the industry has been to individual packaging for the retail market. To meet this need Milco has recently installed an Anscomatic automatic packing machine.

Workers fill the polyethylene bags by hand and place them on a conveyor belt. This belt passes the bags through the heat sealer and under an automatic label printer. The label printer uses an interchangeable die and the labels are printed as they are used. The conveyor then deposits the finished package at a packing area, where the cartons are prepared for shipment.

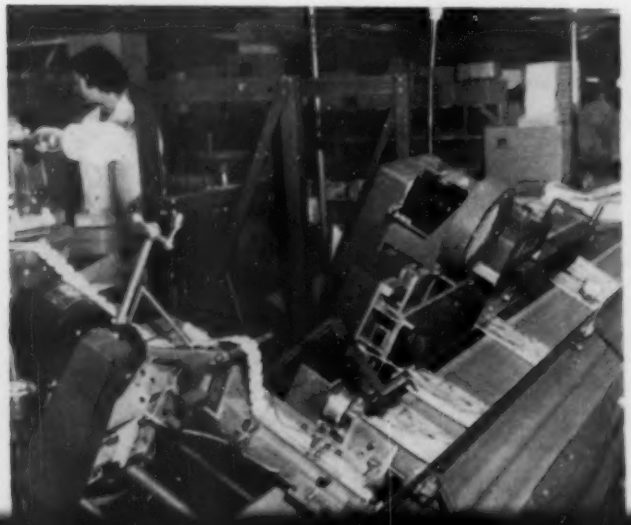
HANDLING ORDERS

Milco has recently installed an IBM 403 data-processing system for inventory control and order processing. Each garment style is recorded on punched cards by color and size. Customer data are also recorded on separate cards.

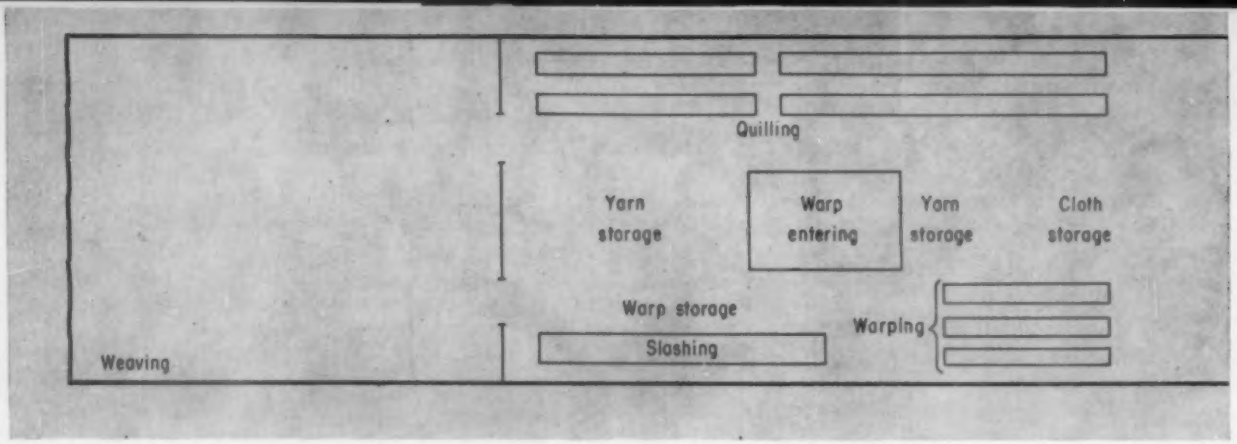
From these punched cards a production control card is prepared for each order handled. The control card is then used for both process and inventory control.

Each week a production report is prepared showing stock, inventory, and open orders. These same control cards are used for a multitude of jobs at Milco: to prepare invoices and to show customer's style, Milco style, quality, size, color, and price.

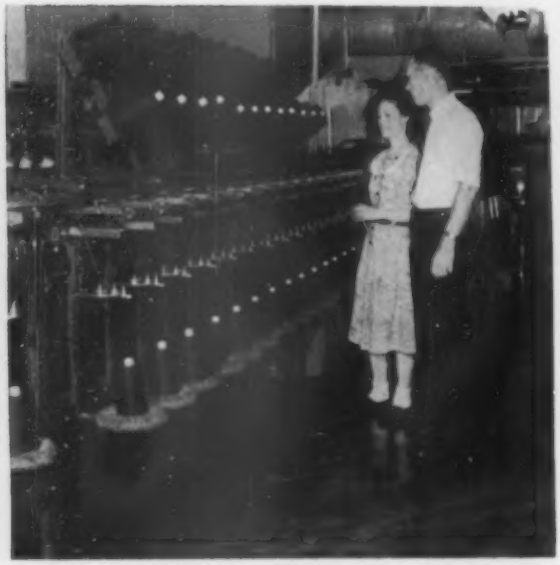
AUTOMATIC PACKAGING and label printing: Conveyor belt passes polyethylene bags through a heat sealer, then through printing-attaching machine.



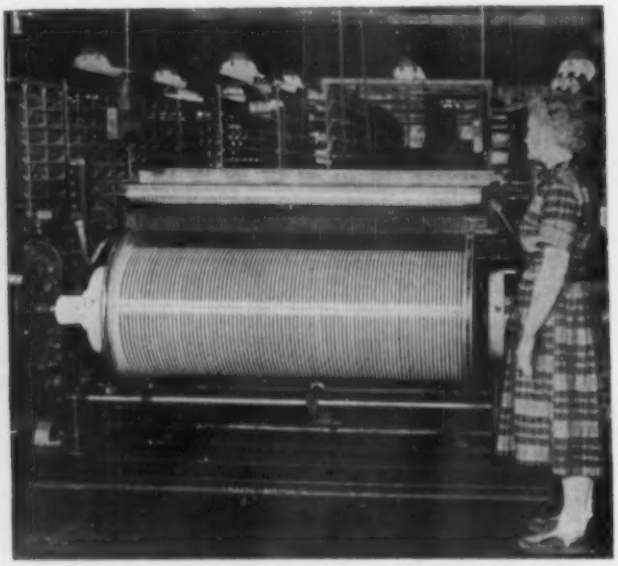
PUNCH-CARD CONTROL of embroidering of two 120-in.-wide fabrics is done on this Schiffli-type machine. Each fabric is 10 yards long.



GOOD MILL LAYOUT: Receiving and shipping (right) are at

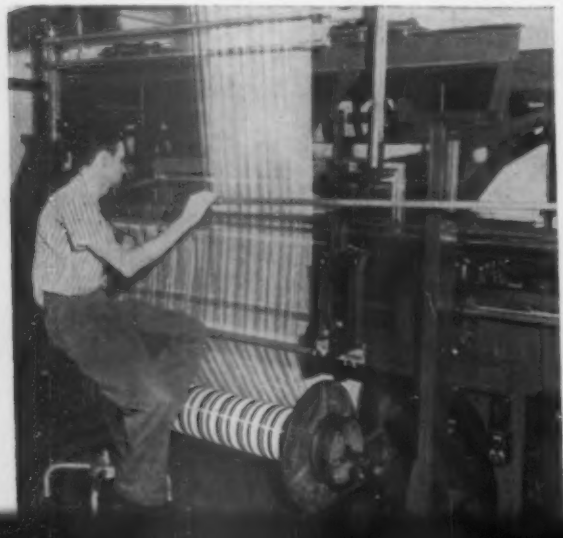


QUILLERS hold as many as 49 different colors of yarn run off on an average day. Here Howard Jobe, assistant manager, checks this black 150-den. acetate yarn with the tender.

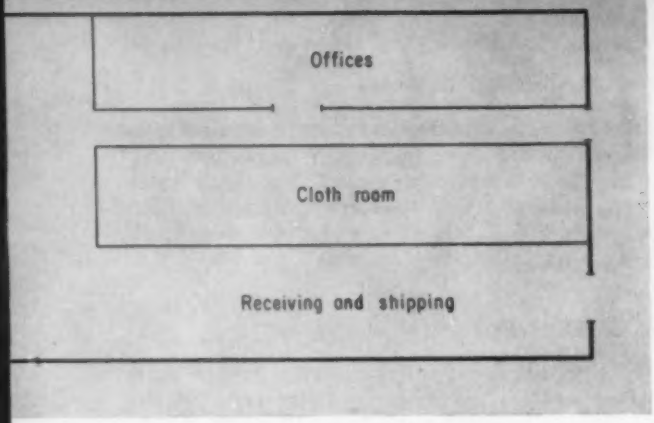


WARPER—new Cocker model—makes beams 54 inches wide in multicolors at speeds up to 500 yards per minute. Two other adjoining warpers are also used for similar warps.

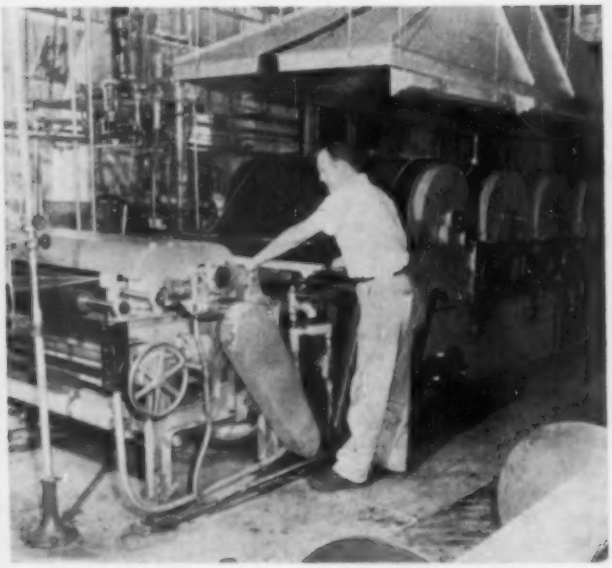
WARP DRAWING machine—a Barber-Colman model—is newest machine in the mill. It's used to draw all warps. It has freed 12 entering hands for other production work.



SHUTTLE BOXES (left foreground) are 4x1, replace original 2x1 boxes. Now with 202 looms converted to 4x1, Schottland finds it has more versatility in multicolor weaving.

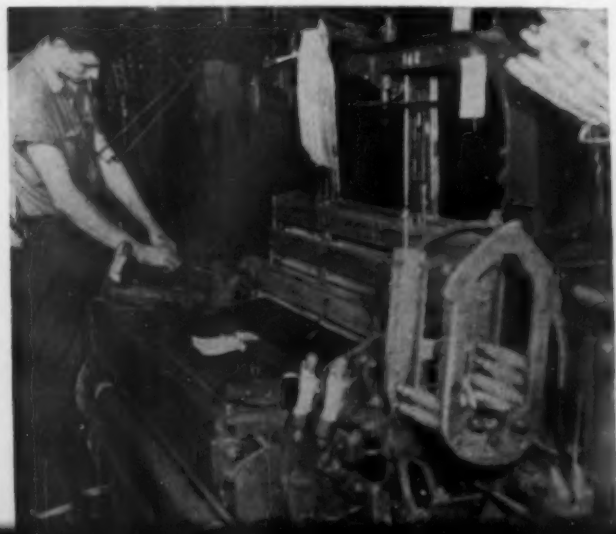


same end of mill.



SLASHER (Cocker model, with regular size box) is supplemented by a Griffin size applicator for greater versatility from man-made fibers to cotton, and vice versa.

YOUNG LOOMFIXER is typical of Schottland's present crop of loomfixers because 13 have been trained at the mill in the past three years. They reach top efficiency fast.



With larger mills moving into the filament man-made-fiber market in woven goods, it's getting to be poor scratching for the small fellow. Most small mills have given up. But here's an exception—a small mill that's swapping competitive blow for competitive blow with the big firms, and coming out with its share of the market. Here's how . . .

a Small Mill Solves its KING-SIZE COMPETITION

PUT YOURSELF in this position: You're running a small mill that produces woven goods made of filament man-made fibers and you're up against the biggest competition there is. What do you do?

That's the position A. Schottland, Inc., is in every day of the week. And every day of the week Milton and Jimmy Schottland make use of two common advantages in an uncommon way. They use a teletype to keep a sharp ear to the marketplace, and they use their main-line railroad location in Rocky Mount, N. C. to get to market fast with new or improved goods.

Using their ability to listen well and act fast, the Schottland boys keep their 264-loom weaving mill ready for anything. Their formula for operation in a field dominated by giant competitors is this:

1. Keep flexible for fast style changes, fast delivery.
2. Update mill equipment to assure flexibility as fast as profits will allow.

LISTENING IN

For fast style changes, teletype service between the mill and the company's New York office is in continuous use. This service controls planning, style changes, fabric defects, and shipments.

. . . Turn the page

There's also a code system so that fabric patterns can be made by teletype. In this way, completely new styles are running on the looms within 24 hours. And all major style changes of existing styles are usually completed within this period. Minor style changes are often made at looms within 5 to 15 minutes.

Because Rocky Mount is on the Atlantic Coast Line Railroad, sample fabrics woven each day and mailed by 7:30 p.m. are received in New York the following day.

NEWER FLEXIBLE MACHINES

Latest equipment change to keep equipment flexible for fast delivery is a new Barber-Colman Model 48 SH warp-drawing machine. By drawing in an average of 132 ends per minute on its multicolor complex patterns, Schottland is now able to get both large- and small-size orders on looms more quickly.

Being small, Schottland naturally has to be a high-style mill. A majority of its fabrics are woven from solution-dyed yarns. Last year a total of 365 over-all patterns were woven. On a typical day, there are 63 different styles in 74 colors on the 264 looms.

Yarns for these fabrics are 150-den. acetate in 20 colors; 150-den. Arnel in three colors; 12s, 20s, and 30s cotton in 29 colors; 230- and 250-den. high-bulk yarns; metallic yarns in several colors; 150-den. two-ply yarns in several fibers; 19/2 spun rayon; 12s spun Arnel; 14s blends of spun rayon and Arnel; and cotton-silk-mixture noil.

Schottland fabrics are principally for umbrellas, raincoat linings, sportswear, draperies, and auto seat covers. Most man-made-fiber fabrics are in the 3- to 5-yd.-per-lb. weight, but some fabrics run 7 yards per pound.

All-cotton fabrics weigh two and one half to 5 yards per pound. Most fabrics in both man-made fibers and cotton-base fibers are loom-finished materials.

Schottland's present mill was built in 1927, and is a single-story building.

Material flow on the whole is straight-line movement with yarn entrance at one end, weaving at the opposite end, and woven cloth returned to the entrance for inspection and shipping.

Materials movement throughout the mill is fairly efficient without a great amount of side movement or carry back.

WINDING AND WARPING

Quilling at Schottland is on two types of machines: Abbott 120-spindle and 60-spindle units, and also on 129 over-all spindles of Whitin-Schweiter in eight machines.

All loom bobbins are seven and five-eights inches long. Spindle speed on the Abbott machines on 150-den. yarn, for example, is 5,200 to 5,300 rpm. Whitin-Schweiter spindle speed is 5,100 rpm.

Schottland's newest warper, in a total of three, is a Cocker spindle-drive machine 54 inches wide. It is operated at 300 to 500 yards per minute depending on the yarn number being warped.

FAST SLASHER

The slasher is a nine-cylinder model also made by Cocker. The first three cylinders of the slasher, nearest the size box, are coated with Teflon. These cylinders are held at 205 F. The remaining six cylinders are held at 200 F. On average sets, the slasher runs 70 yards per minute and warp stretch is 7%.

WARP DRAWING

In addition to faster pattern changing, the new warp-drawing machine has slashed entering costs. Before the machine was installed, there were 12 entering hands. Now there's only one, and she helps the machine operator. The remaining entering hands are now on other productive jobs in the mill as magazine hands in the weave room.

The warp-drawing machine operator was trained by a Barber-Colman instructor. He now draws all of Schottland's difficult patterns and cuts the pattern chains. Patterns have up to 20 harnesses and six banks of drop wires. While the operator is drawing a warp pattern, a man helper is putting up a new warp. The former entering hand builds the harnesses.

MANY-STYLE WEAVING

To make a greater variety of fabric styles, 202 of the mill's 264 looms have been converted from 2x1 shuttle boxes to 4x1 looms. All looms are Crompton & Knowles S-6 models 56 inches wide. All but 28 of these looms were converted to the mill.

The 202 4x1 looms are run 152 ppm., and the 62 2x1 looms are run 162 ppm.

Weave-room efficiency averages 91%, and second-quality fabric ranges below 4½%. With Schottlands grading system, which is about standard throughout the industry, a roll of cloth with six major defects of four points each is a second.

FINDING WORKERS

Because Rocky Mount is somewhat east of the beaten path of other man-made-fiber weavers, employee replacement—particularly loomfixers—used to be one of Schottland's greatest problems.

But a mill-operated training program for employees has completely eliminated this problem. Results are so good that only one loomfixer has been hired the past three years.

Most weavers on the first shift at the mill are women. But 75% of the weavers on the second and third shift are men. There's a man smash hand on each shift who is selected from among the best weavers.

Loomfixer trainees are, in turn, selected from the smash hands. A full-time loomfixer instructor is employed on the first shift. He has a loomfixing class two hours each week throughout the year and has three learners in each class.

One loomfixer's section on the first shift is held for learners. The loomfixer instructor works with this learner as much as necessary to train him properly.

Less than a year ago Carolina Mills bought up two old combed-yarn plants. Today, modernized and re-equipped, they show up as one big, busy carded-yarn plant, turning out 90,000 pounds of high-quality soft knitting yarn per week.

A New Mill From Two Old Ones —and It's Off to a Fast Start

COMBINING two old combed-yarn mills into one modern carded-yarn operation is no easy task. Especially when the mills are separated by a railroad track and when most of the equipment is obsolete. But Carolina Mills, Inc., performed this feat in less than a year—and without outside engineering assistance.

Take a look at the diagrams and photos on the pages that follow. They'll give you a bird's-eye view of new Plant No. 5 at Lincolnton, N. C. This plant, just getting into full operation, is turning out 90,000 pounds of high-grade 16s to 30s knitting yarn per 120-hr. week from single-creeled roving. Needless to say, you don't make premium-quality knitting yarn from single-creeled roving unless you have top-flight management, top-flight equipment, and top-flight quality control.

Production flow is especially interesting because management had to choose between installing machinery on two floors (basement and ground floor) and doubling the area of the ground floor. Carolina chose the former course. The decision was right. Note the short doffing alleys and crosswise direction of flow that cuts down handling time (flow plan, page 44). Now there are no long truck hauls anywhere.

Carolina's new premium-quality yarn mill is the result of long-range planning attuned to changing market conditions. The company was organized in 1928 to produce two-ply weaving yarn. Weaving yarn is still manufactured in quantity, but demand is gradually shrinking as big integrated mills produce more and more woven fabrics.

This trend became evident in the early 1950's, when Carolina began to eye the knitting-yarn market. It looked attractive because few knitting mills do their own spinning. By 1951 the company was in the knitting-yarn business to stay. Since that date management has put increasing emphasis on this product. Acquisition and modernization of Plant No. 5 is the latest step in this direction.

ORGANIZING ANEW

About a year ago Leonard Moretz, secretary, treasurer, and general manager of the company, saw opportunity to buy at a favorable figure two old Lincolnton (N. C.) plants of Glenn Mills. With management backing he closed the deal. Jack Thompson, formerly secretary, treasurer, and general manager of Glenn, joined Carolina as company research supervisor.

Then the real work began. First step: Determine what could be salvaged from Glenn, how much floor space would be needed under one of the two roofs. All engineering fell to Ed Schrum, assistant general manager and chief engineer; production and quality, to Joe Inscoe, supervisor of sales-yarn production, and T. P. Pruitt Jr., vice president and director of quality control. Roy Faires became superintendent.

This management team, headed by Moretz, then placed orders for $1.5-million of brand-new high-speed carding and spinning equipment. Cards were the only production machinery salvaged from Glenn Mills—and they were rebuilt almost from the ground up. Nearly all the new equipment was supplied by Saco-Lowell Shops. Plenty of well trained Glenn operators were standing by, ready to work for Carolina. Present workforce consists of 118 operators on 3 shifts.

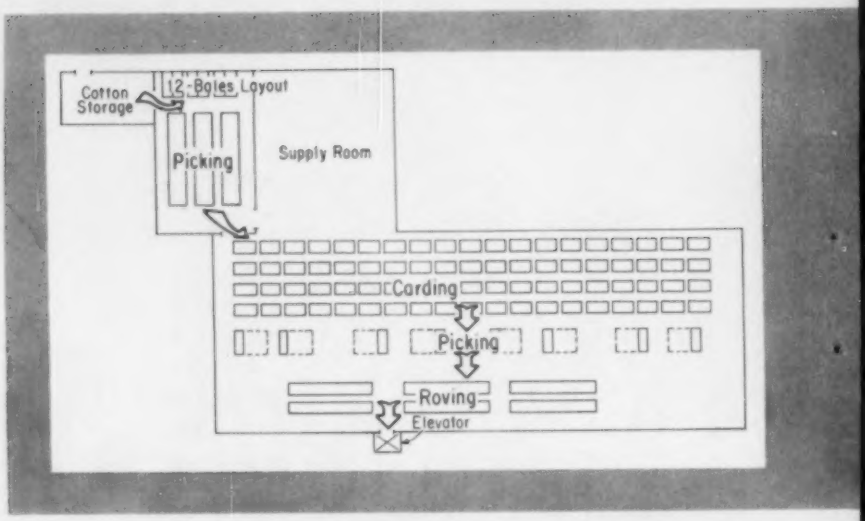
Major gain in the consolidation was to eliminate duplicate supervisors and maintenance and office workers, and reduce overhead.

ONCE OLD—NOW NEW

Moretz and his staff selected Glenn's Plant No. 1 for conversion into Carolina's Plant No. 5 because it was larger than Plant No. 2 and boasted a partly excavated basement. Management decided to complete the basement and use the space for carding. This was done quickly.

. . . Turn the page

Basement floor, now modernized, houses picking, carding, drawing, and roving



A NEW MILL

. . . Begins on page 43

Excavation dirt was used to build up a two-level service yard, with docks at basement and ground level. Concrete floor and walls were poured. Ceiling was reinforced.

The picker room was moved from ground floor to basement. Floor and walls are poured concrete; ceiling, long-span (23-ft.) Flexicore reinforced concrete panels. Panels are self-supported and have lengthwise holes to reduce weight and to provide channels for pipe, wire, and conduit.

At ground level a small addition houses the winders—the only additional roof space required. Other major changes include reflooring the ground level with hardwood and reinforcing floor beams with 12-in. channel iron.

The old opening room at this level is now a waste room. The old dust house in the basement is now the supply room. Carolina needs no dust house now because the pickers, also in the basement, have built-in return-air filters.

FOUR CARDS TO THE ALLEY make doffing easy, since doffing is done by the row rather than by the hour. These cards, the only productive equipment transferred from Glenn Mills to Carolina's new No. 5 mill, have been completely overhauled and equipped with 18x42 Saco-Lowell coilers. Cylinders and doffers alike are covered with Hollingsworth metallic clothing, and several makes of metallic-clothed flats are undergoing operational tests that look promising. The 75 cards in the room put 38 pounds of sliver in each 18x42 can.

CONTROLLING QUALITY

Plant No. 5—along with all other Carolina units—stresses one thing: Quality. Proof of this claim is that two weeks after the mill got into production there were 10 weeks of unfilled orders on hand for most of its numbers.

"Without the closest kind of quality control," says General Manager Moretz, "we simply couldn't produce single-creeled knitting yarn and sell it as a premium product."

Carolina has a two-prong quality-control program: at mill level and at company level. Plant No. 5, for example, has a lab and a full-time quality-control girl who makes daily sizings of yarn, roving, and drawing sliver. Card sliver is random checked, and Uster checks are made on spinning and roving.

Many more tests are made in the central lab at Maiden, N. C. There, eight specialists are constantly checking twist, draft, ends down, breaking strength, boil-off, regain, and other quality factors.

Equipment includes a complete set of Uster testers, three Emerson ovens, two Saco-Lowell lap testers, a Shirley analyzer, Scott testers, Micronaires, and other equipment.

HANDLING MATERIAL

With the exception of some fork-lift trucks used to lift bales of preblended cotton and cartons of yarn,

RAW STOCK (preblended bales made from 1 1/16-in. Strict Middling) is trucked from central opening at Maiden to storage area next to new picker room. Each bale, bagged in polyethylene, is blended from 24 lots. Four bales per picker means final mix is drawn from 96 bales. Old opening room on floor above is now a waste house.

SACO-LOWELL PICKER has oversize blending feeder designed just for Carolina. Extended apron feeds F-5 hopper, keeps stock level. Cleaning is done by a blade beater in back and a Kirschner beater in front. High-compression calender rolls produce a 14½-oz., 80-lb. lap with a Uster variation of 1.2% C.V. Return-air filters eliminate need for dust house.

DRAWING is located just across the alley from the cards. There are eight new Versamatic frames running 360 feet per minute with eight ends up. Four are breaker and four are finisher frames. All machines receive and deliver a 60-grain sliver, which is put into 16x42 cans that hold about 30 pounds of sliver. These cans are trucked across an aisle to new roving frames on the same dollies that move the card cans.

ROVING FRAMES follow the drawing frames. In this department there are six new 13½x7 Saco-Lowell FS-2 slubbers that at present are putting 88 ounces of 0.80-hk. roving on the packages. The frames have 96 spindles each and run at 750 rpm. Other features include cut gears, Pneumastop, and Bijur one-shot lubrication. Stock goes from here upstairs to the spinning room via elevator. The trip takes only a few seconds.

most handling is by hand dolly or truck. Paradoxically, manual handling is more efficient at this mill than handling by mechanical conveyors. Reason: Crosswise layout and short alleys are arranged so that stock is moved only a few feet to each succeeding process.

For example, special dollies haul card sliver from each group of four cards in each alley to the breaker drawing—only a few feet away. Similar dollies convey the sliver to the finisher drawing and then straight across an aisle to the roving frames.

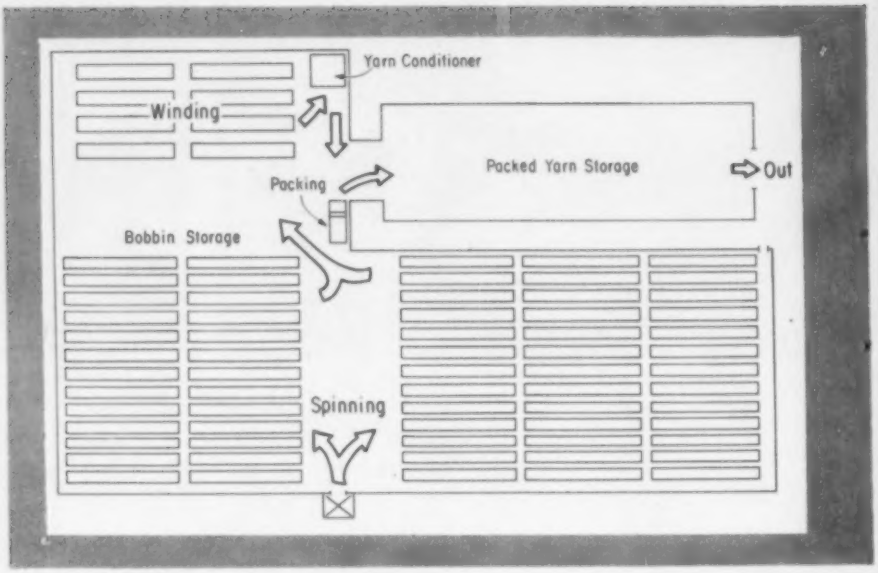
Roving is doffed into spring-bottom boxes designed for use all the way to the winders. There is no reloading of stock into big boxes or little boxes for use at the different processes.

In the shipping department, yarn is wrapped, boxed, weighed, labeled, and palletized for trucking to the main warehouse at Maiden. Trucks that haul cartons of yarn bring preblended cotton and empty pallets on the return trip. No empty trucks make the 8-mile run.

GOOD PLACE TO WORK

Few mills anywhere are better lighted than Plant No. 5. Strip lighting by Wheeler puts 75 footcandles on all production equipment, compared with 40 to 50 in most

Ground floor, modernized and laid out anew, now houses spinning, winding



A NEW MILL ... *Begins on page* 43

mills. Fluorescent lamps are used.

Air compressors, substation, and boilers were taken over from Glenn Mills. Carolina Mills made no changes in the basic equipment. The plant is not equipped with air conditioning. Humidifiers were installed by Parks-Cramer Co.

Major maintenance is under the direction of Chief Engineer Schrum. Fixers make minor repairs under direction of Superintendent Faires.

4 STEPS TO MODERNIZATION

If you're wondering how Carolina virtually rebuilt Plant No. 5 so quickly and easily and how the mill goes about modernizing its other units, the answer is simple. The management has clear ideas on modernization and expansion. Nothing is left to chance or intuition.

STEP 1: LISTEN

To begin with, Carolina's management team is always on the lookout for ways to improve quality and cut costs. Members of the team constantly study textile publications, attend machinery exhibitions, and listen to manufacturers claims.

STEP 2: INVESTIGATE

When something promising appears on the horizon, cost and quality-control departments make a thorough investigation and turn their findings over to the management team. Management buys no equipment until it is thoroughly tested. And if more than one make of a given machine is available, Carolina checks all of them thoroughly. In the case of Plant No. 5, for example, half a dozen different types and makes of spinning frames were tried out.

STEP 3: DISCUSS

Anyone connected with the company can suggest modernization proposals, but recommendations usually come up through the quality-control or cost departments.

One of the reasons for Carolina's success is that the management team abhors obsolete machinery. In the eyes of this group, machinery is obsolete when:

1. Satisfactory quality can no longer be produced; or . . .
2. Comparable new equipment will pay for itself in five years or less.

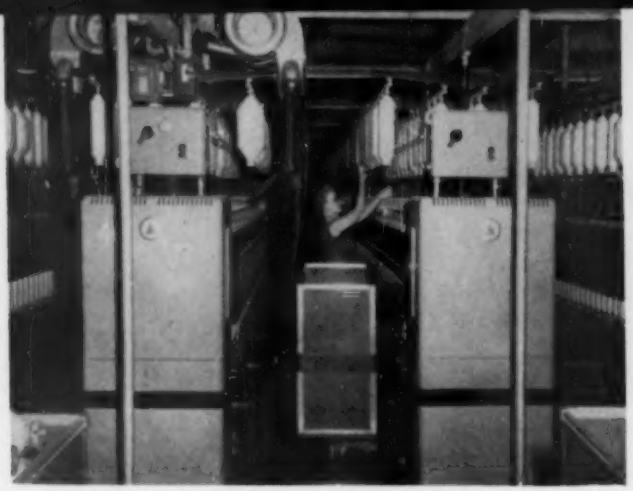
Final determination of obsoleteness of equipment is made by the management team, based on recommendations from the quality-control and cost departments.

STEP 4: ACT

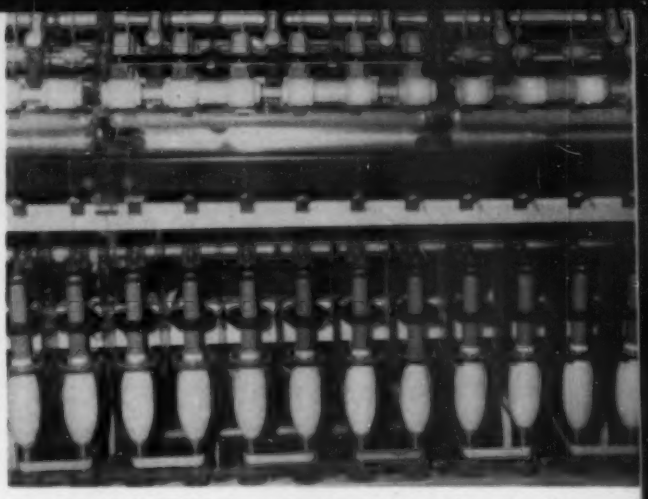
When management decides that new equipment is in order, the team has full authority to spend amounts up to $100,000 without further formalities. For major investments, such as the $1.5-million spent on Plant No. 5, the Board of Directors makes final decision after studying the team's recommendations.

The general manager or his assistant approves all purchases, including small items of supply. The superintendent and his staff can recommend, but they have no authority to buy anything.

Money for modernization usually comes out of earnings. Sometimes Carolina leases equipment. The company tries to avoid bank loans or any other type of financing that would involve mortgaging.

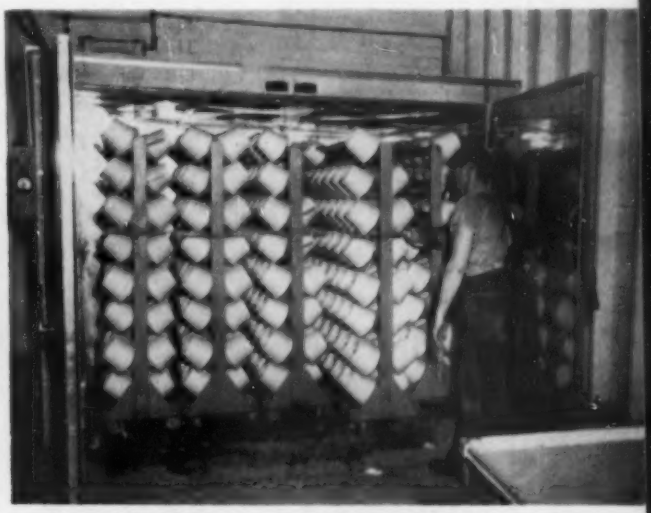


SPINNING ROOM is the showplace of Carolina's new No. 5 mill. Sixty new 4-in-gage, 288-spindle Saco-Lowell SJ frames turn out about 4.5-million pounds of quality 16s to 30s knitting yarn per year. The frames, equipped with Tru-Set drafting and Pneumafil, are single-creeled directly from special Sunray spring-bottom trucks like the one shown beneath the Bahnson Cross-Jet cleaner. These trucks are also used for doffing.



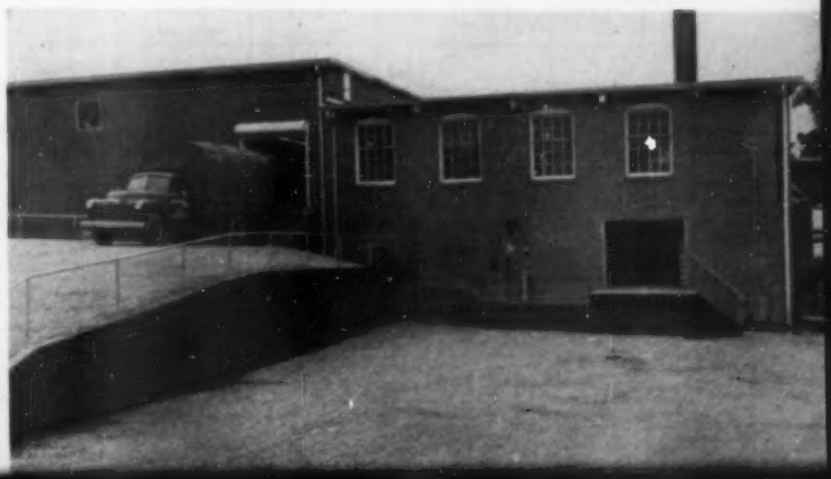
DRAFTING SYSTEM shows the top cleaner resting on rolls (center). The cleaner is moved one stand to the right every time the spinner completes a patrol cycle. This action keeps the rolls clean and at the same time helps the spinner keep check on the number of cycles patrolled per shift. Bobbins shown here hold 8½ ounces of soft knitting yarn. These bobbins will hold up to 11 ounces of warp yarn.

CONE WINDERS produce 2½-lb. cones of knitting yarn at 550 yards per minute. Six of the machines you see here are Foster 102 winders and two are RotoConers. Note that the same truck that was used for creeling the winders has now come up from the roving department. Plans are under way to doff the cones directly onto pin trucks for conditioning. A Parks-Cramer traveling cleaner keeps the winders free of lint.



CONDITIONING is the last operation at Carolina No. 5 before the yarn is packed, weighed, labeled, and trucked back to the central warehouse. Excel pirn trucks in the H-W conditioner shown here hold 60 cones on each side, a full case of yarn from the 120-spindle winders. Yarn is left in the conditioner for 3 hours. When removed it has 7½% standard moisture content. A second conditioner is now being installed.

SERVICE YARDS are built on two levels. Preblended cotton is delivered through the door on the right at the basement level. Ground-level door on the left is where palletized boxes of yarn are loaded for trucking to the central warehouse. The taller building houses the winding department.



Getting More

How Sliver Weight from Various Cards Was Distributed
(1 [illegible], 200 individual samplings, 2-week period)

Weight In Grains	Machine Numbers																	
46	50																	
46.5																		
47																		
47.5	50																	
48	55	50																
48.5	26	45	50	51														
49	56	55																
49.5	26	45	56	50														
50	55	55	55	44	51	50	50	52	52	56	51							
50.5	47	26	26	52	45	51	51	45										
51	47	54	45	44	52	52	62	45	45	56	42							
51.5	43	67	45	54	64	59	51	52	43	43	45	61	50	42				
52	47	65	45	51	45	51	51	51	52	52	45	45	45	61	50			
52.5	67	61	54	45	67	51	50	64	62	54	42							
53	43	43	67	65	45	45	61	54	51	64	51	43	45	61	45	27		
53.5	67	65	51	59	44	44	44	43	62	68	54	61	45	42				
54	47	67	67	50	50	64	62	45	68	42								
54.5	47	61	51	64	64	40	46	56	68	46	46	42						
55	47	47	59	40	45	54	27											
55.5	43	51	59	67	45	68	42											
56	65	61	50	50	60	60	44	56	68	45	45	68	68	45	40			
56.5	50	54	40															
57	47	50	60	44	46	46	42	40	40									
57.5	50	40	68	45	42													
58	40	56	56	42														
58.5	42																	
59	60	60	60	60	44	27												
59.5	50	42	27															
60	44																	
60.5	60	44																
61																		
61.5																		
62	50																	

$\bar{X}' - 3\,\text{sigma} = 44.8$

$\bar{X}' = 53.6$
$\text{sigma} = 2.927$

$\bar{X}' + 3\,\text{sigma} = 62.4$

from Sampling

Sampling is a "must" in quality control. But if you stop with the rough indications it gives, you're missing a lot. Here's how to get more from it.

SUPPOSE you're running a statistical quality-control program. You sample the product in line with usual procedures, arrange the findings into control charts, and act on what the charts show.

But if you stop there you're missing much of the benefit of statistical quality control. Because there are more things to be learned from the data than your control charts will tell you. That's why you should analyze your data further.

How do you do that?

Suppose, for example, you're keeping an eye on sliver quality. Among other things, you make periodic frequency distributions of sliver weights that you take from daily worksheets. Weight increments for such a distribution are usually 0.5 grain. Instead of using tally marks to make the frequency distributions, record the machine or delivery number on the proper sliver-weight line, as is done in the distribution at the left of the page. (Paper ruled into four lines per inch will give you a neat, effective job.)

... Turn the page

By ERNEST E. BECKNER
Quality Control Analyst
Leesville, S. C.

2. How Various Cards Were Sampled — and What Average Sliver Weight Was

Card No.	4-Yd. Units Sampled	Average Sliver Weight	Card No.	4-Yd. Units Sampled	Average Sliver Weight
26	4	49.8	54	8	53.9
27	4	56.6	55	4	49.5
40	8	56.8	56	8	52.5
42	12	55.3	59	4	53.9
43	8	52.8	60	8	58.2
44	8	56.4	61	8	53.2
45	28	52.8	62	4	52.8
46	4	55.8	64	8	52.6
47	8	53.6	65	4	53.6
50	20	52.8	67	8	53.3
51	16	51.9	68	8	55.4
52	8	51.0			

3. How Upper and Lower Control Limits Tightened Up As Number of Sub-Groups Increased (Each sub-group = 4 yards from one card)

Sigma Factor	Upper Control Limit	Lower Control Limit	Sub-Groups of ...
±3.00	62.4	44.8	(Individuals)
±1.50	58.0	49.2	4
±1.06	56.7	50.5	8
±0.87	56.1	51.1	12
±0.75	55.8	51.4	16
±0.67	55.5	51.6	20
±0.57	55.3	51.9	28

Minimum number of values that will give you a reliable distribution is about 200. Of course, 500 would be even better. Even so, you can safely establish 200 individual values as a standard because sometimes you may want results quickly —when you don't have time for 500 samplings. And if you want your latest distribution to be comparable to those you have made in the past, it must have the same number of values. Suppose, therefore, you post 200 individual samplings, as in the chart on page 48.

You might think this frequency distribution is all you need to see. It will give you some rough-and-ready facts. It will show you right away whether the averages look about right; whether the shape of the distribution curve is normal; and whether the extremes are badly out of line.

But if you've spent all the time that's required to enter the distributions, you'd be wasting both time and money if you stopped with those simple indications. There's much more to be learned.

So go ahead. See what else you can find out.

GETTING BONUS BENEFITS

First, compute the arithmetic mean (average) and the standard deviation for all the data.

As shown in the chart (p. 48), the mean of all the 200 samplings turns out to be 53.6 grains. That much was easy.

Now go after the standard deviation. What's that? It's a way of expressing the normal expectation of distribution on either side of an average. If the distribution is normal, 99.7% of the individual measures will fall within certain mathematically determined extremes on either side of the mean and only 0.3% will fall outside those extremes. These limits are three standard deviations (or sigmas) to each side of the mean.

To compute sigma (σ), determine the number or frequency (f) of items in each category (i.e., at 55, there are 7). Next square the number for each category (for 55 this is 3,025) and multiply this (X^2) by the f number (for 55 fX^2 is 7 x 3,025). Now you are ready to apply the sigma formula:

$$\sigma = \sqrt{\frac{\Sigma fX^2}{N} - M^2}$$

where ΣfX^2 is the sum of the fX^2 numbers for all categories, N is the number of categories filled, and M^2 is the mean squared. In this case, sigma is 2.927.

The theory behind this and other methods of computation, which eliminate some of the math, may be found in any text on quality control (for example, E. L. Grant, *Statistical Quality Control*, McGraw-Hill Book Co., Inc., 1952).

Three-sigma in this case is then 8.8 (3 x 2.927). Thus 99.7% of the 200 measures we're working with must fall between 44.8 grains (53.6 — 8.8, or mean minus 3-sigma) and 62.4 grains (53.6 + 8.8). Those are our upper and lower control limits for these 200 measures. Anything that falls outside those limits is a sign of trouble.

Next find the number of samples from each machine and determine the average for each machine.

FINDING THE LIMITS

Now you're ready to compute upper-control limit (UCL) and lower-control limit (LCL) for the means of the samples you have taken from each machine. If a machine is producing correctly, the mean of its sample should fall between these numbers. Reduced to simple terms, the formulas go like this:

$$UCL_{\bar{x}} = X' + A_1$$

$$LCL_{\bar{x}} = X' - A_1$$

Where: $\bar{x}$ = average of the distributions for each machine
X = grand average of frequency distribution
A_1 = the appropriate number of sigmas for each sample size

In this example, four sample measures were taken each time a machine was sampled. By the random-sampling system used, some machines were sampled more than others. So, for card 26, which was sampled once, there are four measures; for card 60 which was sampled twice, there are eight. A basic concept of statistics is that as the size of the sample increases the more closely its average approaches the *true* average of the population from which it was drawn. Thus, the larger the sample taken from a machine, the narrower the acceptable range of weight we should set for it.

Tables have been constructed (e.g., Table E, p. 515, in Grant) that tell how many sigmas to use for each sample size. For size four, for instance, we set limits at 1.50-sigmas.

Now look again at the recapitulation of average sliver weight by machine. The average weight for the eight samples taken from Card 60 is 58.2 grains, well above the UCL of 56.7 set for that size sample. That's your cue to check it over carefully, get it back into line.

RULES TO GO BY

The frequency distribution we've been working with is not so smooth and symmetrical as you might expect. The truth is, the controls were not 100%. For example, humidity was not held constant and the mixes laid down in the opening room varied from compressed bales to country bales. What's more, the sampling system itself was not complete. Note, for example, that Card 45 was sampled 7 times. Card 50 was sampled 4 times. Card 42, 3 times. Yet 21 other cards were not sampled at all. This points up one of the hazards of random sampling and a numbers table. In this case, it might have been better to structure the sampling plan to get better coverage of all machines. Suggestion: Make random time sampling on all machines or sampling without replacement.

FOLLOWING THREE TIPS

But on the whole, these are quibbles. Essentially the system is sound. The lengths to which you take it will be determined by the accuracy you demand of it. Even for simple studies like this one, the quality-control manager must:

- Use some mechanical and unbiased means of achieving true randomness in sampling. The human mind just isn't objective enough to do this on its own.
- Run frequent checks to see that the sampling is random, that it remains random, and that it is wholly effective.
- Investigate and correct any shift or trend away form standard acceptable deviation.

Making One Idea Pay Off Two Ways

A series of slasher modernizations at Cone Mills' White Oak Plant pays off so well in uniformly slashed warps that higher quality now matches dollar savings as a modernization achievement. Here's how Cone is gaining two ways from a single idea.

WHEN A MILL makes a change that saves $13,000 per year and the saving is only incidental—that's real modernization. And that's just the story developing today at Cone Mills' White Oak Plant in Greensboro, N. C.

A new bulk-starch handling and size-preparation system is saving Cone $250 every week. But Cone's really big gain is in quality—in uniformly slashed wraps.

White Oak's General Overseer of Beaming and Slashing, C. M. Culbreth, tells the story this way:

"We've always had pretty good warps. But the trouble was, everyone in the slasher room had to beat his brains out keeping good warps. But now with this automatic system, nothing can go wrong. Size viscosity doesn't vary one-fourth of one percent. Size-pickup variation from the standard, if there is any variation at all, is too small to measure. And moisture content is always very uniform."

NO MORE GUESSWORK

Now there's no more manual handling, no measuring and weighing starch for size, and—no guesswork, Culbreth adds. "It's all done automatically, and supervisors are free to supervise and to plan."

Cone's new system is built around a Permaglas (A. O. Smith Corp.) bulk-storage unit that holds four carloads of starch. The unit is glass-protected inside and out, so it's unfazed by corrosion. There's permanent bonding of glass fused to steel. Dimensions: 20 feet in diameter and 30 feet high.

The system was engineered by Cone's Head Engineer E. L. Jones and engineers of Sprout Waldron & Co., Inc. Sprout Waldron also furnished much of the bulk-starch handling equipment. Cone's construction department made the installation in just six weeks.

The bulk-starch-handling system itself is Pneu-Vac, a negative pressure system designed to unload 40 tons of starch in 6 hours. The system will convey 40 feet horizontally and 48 feet vertically to the Permaglas storage unit, but Cone's distance is actually less.

Starch comes to White Oak in hopper-bottom cars, and there's a railroad siding alongside the size-preparation room. This way, starch has to be transported only a short distance after it's unloaded.

UNLOADING — AUTOMATIC

From the hopper car at the siding, starch is blown through a 4-in. pipe to the storage unit. Each car has two hoppers, and each hopper has two outlets through which the starch is unloaded.

During unloading, individual special pans with hose connections are clamped to the bottom of the two outlets on one hopper. At a platform beside the car there's an inverted Y-fitting with a slide gate, which connects either pan to the single 4-in. conveying pipe. Both

MECHANIZED storage unit is 20 feet in diameter, 30 feet high. It handles four carloads of starch, each with up to 88,000 pounds of densified starch or 65,000 pounds of pellet starch.

CONTROLS for storage unit govern nearly automatic handling system at White Oak. A carload of starch is received about once a week.

outlets must be used in unloading the hopper, but only one outlet can be used at a time.

By shifting the slide gate back and forth, the size-making operator connects first one pan and then the other to the unloading system, and the hopper unloads uniformly through both outlets without any interruption. The unloading pans are then shifted to the second hopper manually, and then the second hopper is unloaded automatically, like the first one. A high-powered electric car vibrator that was a "must" for unloading powdered pearl starch is no longer used since the change-over to the free-flowing starch.

Cars hold from 60,000 to 90,000 pounds of loose starch, and unloading time is 3 to 4 hours.

SPECIFICATIONS — CLOSE

Power for transporting starch from car hopper to the storage unit is furnished by a blower. Inlet and outlet are 8 inches in diameter. The blower drive operates vacuum service at 2,650 rpm. and consumes 40 brake-horsepower at the blower shaft.

The blower handles 1,100 cfm. of air. A 75-hp., 1,755-rpm., 550-v. motor is used.

At the top of the storage unit there's a No. 4 dust collector and product-recovery unit.

There's a master control station 6 feet from the Permaglas structure to unload hopper cars. First, the operator pushes two buttons to start the dust collector unit. Then he pulls a switchgear lever to start the

BLOWER CONVEYOR guides starch from storage to weigh hopper. No attention needed except to shift loading pans at boxcar hoppers.

WEIGHING HOPPER is automatic except for shifting slide gate to start flow of starch that dumps into cold-slurry mixing tank.

blower. And if the dust collector is not in operation, the blower will not start. This safety feature prevents any possible explosion.

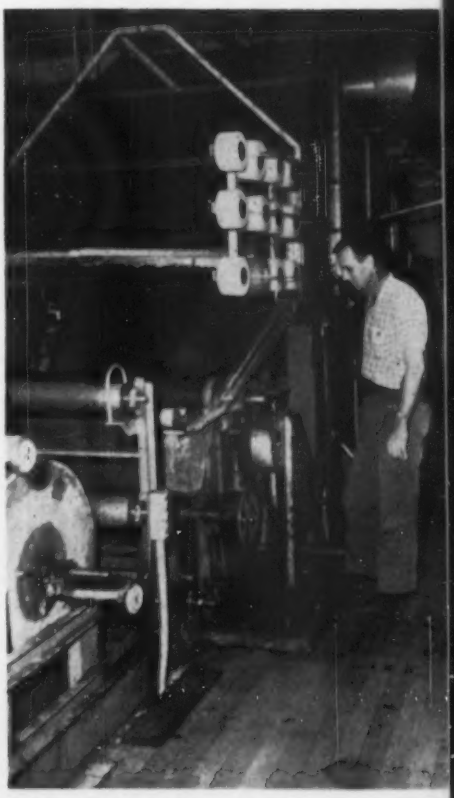
SAFETY — ALL ALONG

To prevent overloading the Permaglas unit, there's a light inside the size-cooking room that tells the operator when there is room in the storage tank for a full car of starch. The light burns continuously as long as the level in the storage unit is one car low. If the light goes out while the operator is unloading a car, he knows he can finish emptying the car but cannot start unloading another carload.

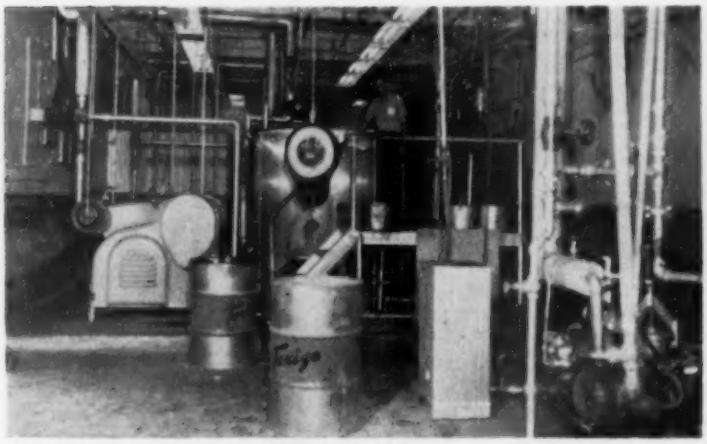
During normal five-day-week operation at White Oak, a carload of starch is received every week. But sometimes two carloads are received at once.

Starch is discharged from the Permaglas unit by a mechanical sweep-arm bottom unloader. This basic unloader consists of a sweep arm with chain and attachments and a drag conveyor with chain attachments. The transmission assembly includes a ratchet for advancing the sweep arm clockwise. An indicator shows the position of the sweep arm at all times.

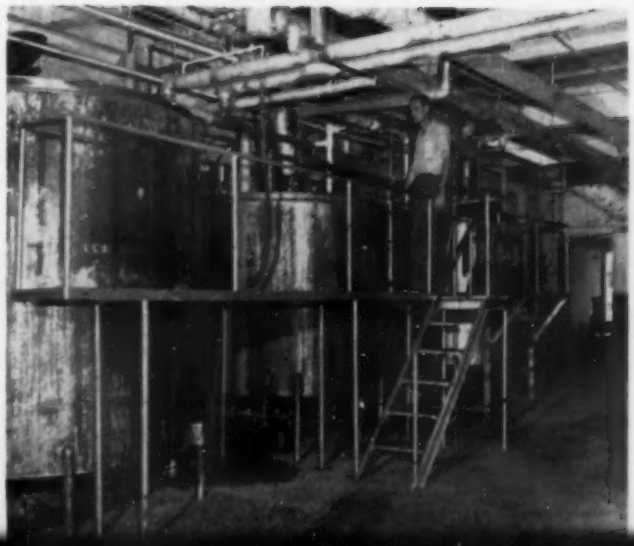
A screw conveyor takes the starch from the sweep-arm unloader up an incline and on into the size-cooking room. This screw conveyor is 45 feet, 10 inches long. The conveyor housing is 9 inches in diameter, and it's a right-hand-screw unit. Capacity is 300 cubic feet of



SIZE BOX keeps size at constant temperature with a Taylor control. Special feature is the hood that's moved from over drying cylinders for complete cleaning.



COOKING KETTLES are automatically charged with cold slurry and water. After cooking, size is homogenized for uniform viscosity.



STORAGE KETTLES hold size at constant temperature. One feature is a Waukesha pump with pneumatically controlled vented cover to pump size to slashers.

starch per hour delivered at 139 rpm. with the box 45% full. The conveyor is powered by a 1½-hp., 550-v., 60-cycle motor (U.S.).

AUTOMATION — NEARLY

Starch from the screw conveyor is dropped into an automatic-weigh hopper in the size-making room. The hopper was built to Cone's specifications by a local shop.

The hopper is balanced to a standard 500-lb.-capacity scale. A Microflex water-counter meters a predetermined amount of water.

Overseer Culbreth calibrates the scale and water meter for a cold-slurry mixture. No one else in the mill ever touches the scale or water meter.

To start the operation, the size-making operator manually pulls a slide gate to dump the starch into a slurry tank. The starch has already been weighed automatically. Pulling the gate actuates a limit switch that starts the flow of the water.

Each new batch of water and starch is added to the full batch of slurry already in the tank. The water and starch are thoroughly mixed in the tank by a Lightning mixer. The slurry is kept in continuous circulation through the tank with a centrifugal pump until it goes to the cooking kettles.

In coming water and circulating slurry come into the slurry tank through the same inlet, which further mixes the ingredients. Filling time is 5 minutes.

CONSTANT CHECKS

There's a constant-level check in the slurry tank that prevents slurry from being removed if there aren't two full batches in the tank. Fresh slurry can't be removed until it has been mixed in the tank for 4 full minutes.

From the slurry tank, the cold slurry is pumped to one of four size-cooking kettles. The operator opens a valve at the cooking kettle, sets a meter for a predetermined number of gallons of slurry, and presses a button that actuates a pair of automatic valves to switch the slurry from circulating system into cooking kettle.

After the correct amount of slurry is pumped into the kettle, the valves automatically switch the slurry flow back to the circulating system. The operator then resets the same meter for a predetermined number of gallons of make-up water and presses the button again to add the water to the slurry automatically.

A one-piece size compound is added to each batch of size manually. After being cooked, the size is pumped to one of two Manton-Gaulin homogenizers. The finished size then goes to one of three storage kettles, where it is held at constant temperature.

A pump with pneumatically controlled vented cover is used to pump finished size from storage kettles to slasher size boxes. Size is held at constant temperature at the size boxes with Taylor temperature controls. Size level is maintained with electrode controls.

MOTHBALL MAINTENANCE

Maintenance of the system takes almost no time. Size and cold slurry run out at the weekend shutdown. Then the system is flushed out with water.

Every six months the starch is allowed to run out of the storage unit. Then the unit is inspected and worn parts are replaced. A reserve supply of bagged starch is used to restart the system until the storage unit is refilled. This bagged starch is used within six months, so it never becomes stale.

With this installation White Oak makes a good material-cost saving by using bulk instead of bagged starch. Labor savings come from reduced handling from car to storage and in the operation of the size-making room.

SLASHING — IMPROVED

White Oak's slashing modernization doesn't stop at slasher size boxes. Six new multicylinder slashers with d.c. multimotor drives have replaced 16 old three-cylinder slashers with line-shaft drives.

The 16 old slashers were run only two shifts. The six new ones run three shifts. Converted to total operating time, the slasher ratio is the equivalent of 18 new slashers doing the work that was formerly done by 32 old ones.

Slashers have nine drying cylinders and two sets of squeeze rolls. Top rolls are rubber-covered. Immersion rolls are stainless steel. Rolls have pneumatic lift. Mr. Culbreth points out that rolls are level all the time and pressure, on the front roll especially, is constantly even.

Slashers have reversing presser rolls. Cone has designed and added an effective cylinder to put up the presser rolls and maintain constant pressure against yarn.

PAYOFF — UNIFORM WARPS

Moisture content of warps is held constant and accurate with a James Hunter control. Size pickup is also uniform.

A system of steam-pressure reducing values arranged in parallel, designed by Head Engineer Jones and installed by Cone maintenance men, effectively protects warps from overheating at slasher slowdowns and stops.

During running, the operating steam pressure on the slasher cylinders is held constant at a high pressure. But at slowdowns the pressure automatically and quickly drops and, at stops, falls to 0 psi. When the slasher is restarted, pressure immediately builds up again. White Oak uses steam from its high-pressure system to heat its slasher cylinders.

Another interesting and productive slasher "extra" is an extra stationary magazine creel at each slasher. While one set from one magazine is running, a helper creels in a second set of section beams. This way, slasher downtime is reduced considerably.

Slasher hoods designed by Mr. Jones and built in a local shop contribute to over-all slasher cleanliness. The hoods are portable and are moved completely away from the slasher cylinders with the electric hoist and monorail system used for handling section beams.

Then the hood interior and exterior are cleaned at the same time slasher cylinders are cleaned. A hood can be taken loose from the exhause stacks, moved, cleaned, and then repositioned in somewhat less than 15 minutes.

What You Should Know About Rio Grande's 1960 Cotton Crop

The first 1960 cotton, from the Lower Rio Grande Valley, is now hitting mills all over the country. How's this cotton going to run? What's good about it? What's bad? Here are the answers.

ON-THE-SPOT observations made as early as July 1 in the Lower Rio Grande Valley by Textile World indicated that the hand-picked fiber in 1960 will have good tensile strength and that grades will be normal, in spite of late replanting and droughty conditions during the growing season. At the time of this inspection, irrigated cotton promised full yields, but dry-land cotton looked very disappointing from the standpoint of yield and Micronaire values.

As it turned out, tensile strength is significantly higher than last year's crop and much better than the five-year average (1954-58) — primarily because of prolonged dry weather during boll development. The Pressley test shows it to be 82,000 psi. at zero gage (79,000 psi, last year). Average yarn break factor is 2,369.

By F. L. GERDES, Cotton Technologist, USDA, Retired, Leland, Miss.

LENGTH IS SHORTER

Staple length is off a bit compared with 1959, but it is better than the five-year average — 33.6 against 33.2. Increased tensile strength gives this cotton the equivalent of $\frac{1}{32}$ inch additional staple length over the five-year average and $\frac{1}{16}$ inch over the 1959 crop.

Grade of 102 (M+) is the same as for the five-year average and better than that of the 1959 crop, which was 100 (M). In connection with grade, ginners in the Lower Rio Grande Valley seemed very conscious this year of the adverse effect of overdrying. At least a third of them were using moisture meters to guard against it. Most gins were operating at a moisture level of 5 to 7%—the range recommended by research agencies as the best bale value.

Manufacturing waste, like grade, is much improved over last year and is considerably better than the five-year average. Picker- and card-waste averages 7.1%, compared with 8% for 1959 and 7.5% for the five-year average. This improvement indicates that the ginners are doing a better job. All gins in this area now have two lint-cleaning systems and some have three.

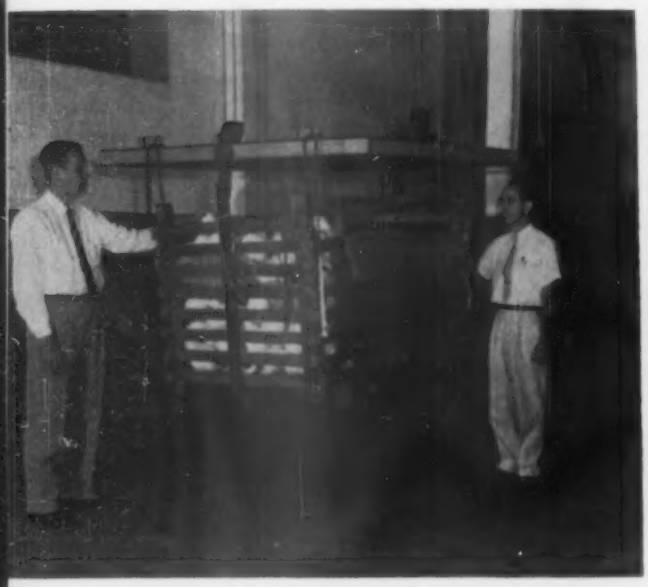
Micronaire value of 4.4 is not greatly different from last year's average of 4.5. Appearance grade of 98 is better than last year's 92, but it is considerably poorer than the five-year average of 106.

How The Texas Rio Grande Valley Crop Looks

Properties	1954	1955	1956	1957	1958	5-yr. average, 1954-58	1959	1960
Grande index and designation	102 (M+)	100 (M)	101 (M)	104 (SM)	103 (SM)	102 (M+)	100 (M)	102 (M+)
Staple length (inches)	32.8	33.0	33.8	34.0	32.5	33.2	33.8	33.6
Upper-half mean (inches)	1.04	1.03	1.01	1.08	1.01	1.04	1.07	1.03
Micronaire value	4.1	4.6	4.5	4.6	4.7	4.5	4.5	4.4
Maturity (%)	83	78	80	80	80	80	78	77
Tensile strength (1,000 psi.)	78	79	81	82	80	80	79	82
Manufacturing waste (%)	6.8	8.8	7.5	8.2	6.4	7.5	8.0	7.1
Neps (per 100 square inches of card web)	14	6	12	8	13	13	13	21
Average break factor	2,180	2,200	2,300	2,410	2,240	2,230	2,360	2,369
Yarn-appearance index	109	106	105	111	102	106	92	98

FIBER PROPERTIES of the 1960 crop are generally superior both to last year's crop and to the five-year average. Among the improvements are tensile strength, manufacturing waste, and grade. Staple length is slightly off and neps are higher.

Step 1. CONTROL STATION NO. 1 is in the new yarn-storage department. Here General Superintendent Bill Younger (right) sets off the pushbutton to start the material-handling system.



Step 2. YARN PACKAGES totaling 350 pounds start their journey to the dyehouse. Two boxes this size (total 700 pounds) can be moved. After the pushbutton is pressed, yarn movement is completely automatic.

New Handling System Links 4 Mill Areas

An automatic system for handling 700 pounds of yarn packages or 1,000 pounds of dye beams at once at Virginia Mills has completely eliminated manual handling among four important mill departments.

A NEW material-handling system has drastically reduced manual handling at Virginia Mills, Swepsonville, N. C. This mill spins and weaves a wide range of cotton yarns and many man-made fibers.

This material-handling system, a single monorail tractor, is only 266 feet long, but it joins the four main yarn-preparation departments of the mill: (1) yarn storage, (2) quilling department, (3) warper room, and (4) yarn dyeing.

The mill building is multistory. But its specially designed new material-handling system (designed by Lockwood Greene Engineers, Inc., and manufactured by Cleveland Tramrail) has overcome limitations imposed by this type of construction.

PROBLEM—YARN DYEING

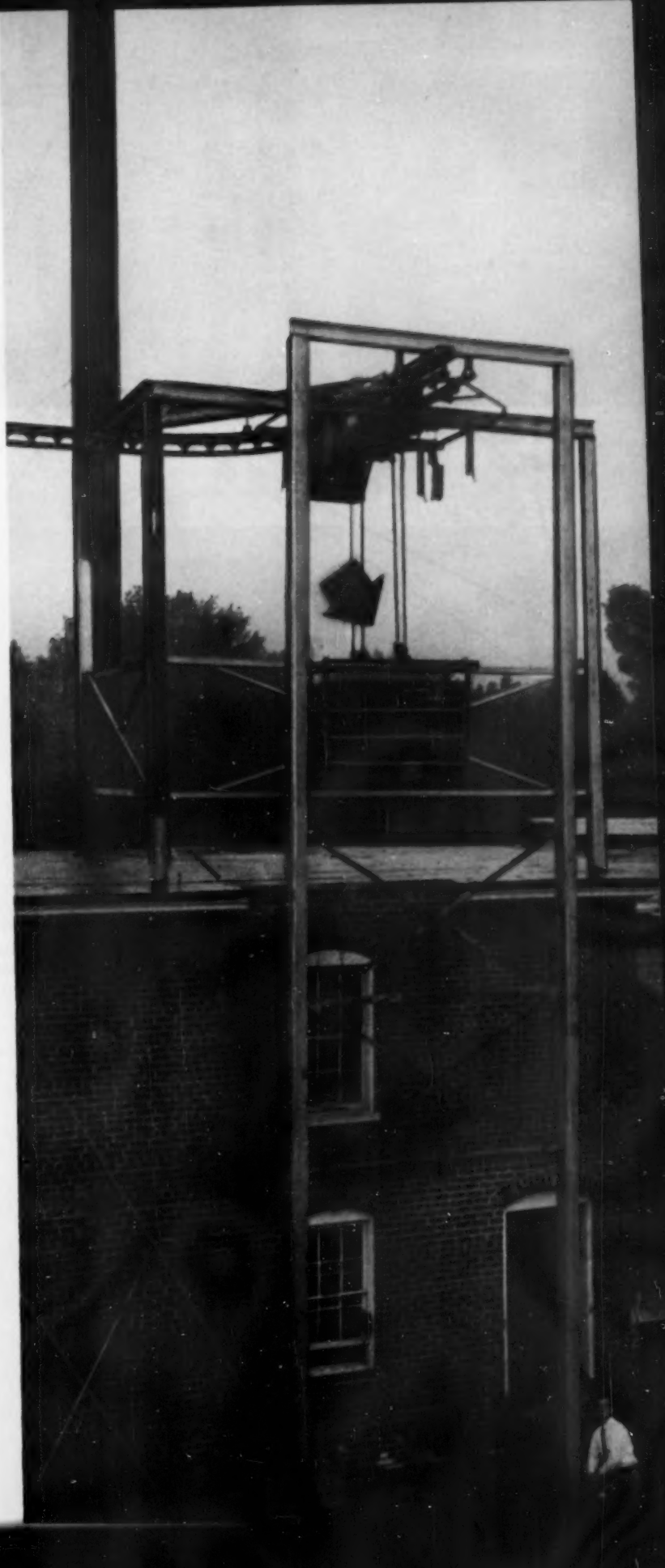
Yarn storage is one full floor below the warper room. Much of Virginia's yarn is package-dyed or dyed on dye beams. That's why there's a lot of shuttling of yarn back and forth. And here's where the new automatic system comes in.

A monorail extends from the yarn-storage department, through the warper room, and outdoors to the dyehouse 266 feet from yarn storage.

The handling system operates on 220 volts. Tractor motor is ¾ horsepower. Hoist size is 3 horsepower, and capacity is 1 ton. The over-all track is 266 feet long, and the tractor ordinarily makes a complete one-way trip in 3 minutes. When the load is moving at head level, a bell system tolls a warning signal to alert employees.

Step 3.

END OF THE LINE is at the dyehouse door, 266 feet away. The box of yarn (arrow) will be set down gently at the platform (Station No. 4). Half the monorail is outdoors, 65 feet above ground level.



Station No. 1 is in the yarn-storage room. No. 2 is just above this station on the second floor and a few feet away (it isn't used much). No. 3 is in the warper room, and No. 4 is in a separate building, the dyehouse.

Tubes of yarn to be dyed are placed into large wheel-mounted slatted boxes that hold 350 pounds. Two of these boxes are transported at once by the tractor of the system. An employee in the yarn-storage room fastens either one or two boxes, as needed, to the cables and platform of the carrier. The cables are lowered and raised by an electric hoist operated by a pushbutton.

MOSTLY AUTOMATIC

Each station has pushbutton controls. A loaded box of tubes of yarn is transported automatically to the dyehouse when the operator presses the correct pushbutton for the designated station.

Dye beams move from the warper room to the dyehouse from Station No. 3 in this same way. Most dye beams weigh approximately 500 pounds. The tractor can carry one or two dye beams at once.

An employee at Station No. 4, in the dyehouse, unloads both tubes of yarn and dye beams to be dyed. At this station, the tractor is 65 feet above ground level where materials are unloaded. A hoist raises and lowers materials.

Dye tubes of yarn return to the yarn-storage department (Station

Step 4. DYE BEAM from warper is being picked up in the warper room (Station No. 3) and is on its automatic way to the dyehouse, where it will be pressure-dyed.

Step 5. ROWS AND ROWS of metal bins store 500 types of filling and warp yarns. Each type of yarn is carefully stored. That is why it can be found in just one minute.

Step 6. FINAL CONTROL is mental, not mechanical. Attendant checks rotary file at top to find drawer location of the desired yarn in stock. Drawer shows the exact location in the bin and the total pounds in stock.

HANDLING SYSTEM

. . . Begins on page 56

No. 1) or drop off at the warper room (Station No. 3) wherever they're needed.

Dyed beams return to the warper room (Station No. 3).

A bell system controls movement of yarn. There's a pushbutton signal at each control station, and an employee at any station can signal his need for materials.

Half the monorail is outside the mill buildings. A storm-door area protects the main building from the weather and also retains mill humidity. While the storm door is open, a second interior door is closed, and vice versa.

The system has done so much to reduce manual handling and to expedite the flow of goods that Virginia is planning a complete and separate monorail system to be installed soon at its slashers.

CONTROL—INVENTORY

Another development simultaneous with the material-handling system is the new yarn-storage department. Row after row of attractive, well-kept metal storage bins are placed back to back to hold over 500 colors, yarn numbers, and types of filling and warp yarn stocked.

A complete perpetual inventory system is easy to keep. An attendant on each shift draws out yarn by order and places in new yarn. If she puts in or takes out 1 pound, 2 pounds, or 20 pounds of yarn, she makes changes in her records accordingly.

The record system is a table-top file system. On top there's a rotary file with tabs to show yarn number and type. Each tab shows where the card for a given yarn is placed in a larger drawer file underneath. Each file card shows the pounds of a given yarn in storage and the bin number.

Bins are lettered in letters A through U. And they're numbered lengthwise 1 through 28. Now it's easy to find yarn.

Making Changes Work

Ever try to make a change in the mill—only to find out you've got opponents you couldn't budge with blasting powder? If so, it isn't an isolated problem. Fact is, the way to make changes that work is to get your opponents themselves to lead the way. Here's how.

DID YOU ever have a wonderful idea? One so good that it got immediate and enthusiastic approval from upstairs? But then fell flat on its face when you tried it out in your own department?

If such a thing has ever happened to you, probably you floundered around a bit, tried several alternatives of your new idea, then finally accepted the fact that you had run head-on into that old familiar obstacle: resistance to change.

Suppose we eavesdrop on a conversation during just such a scene as we've sketched above:

"I can't understand it, Mr. Richardson. I had the whole thing figured out beautifully in my mind. I had every angle covered and worked up to the Nth degree. There's no question it would have improved things all down the line. So why did everybody give it the cold shoulder on the job?"

"Let's talk about it, Dave. As personnel manager, I may have had a bit more time to think about this kind of problem. Sit down a minute. Maybe we can find some principles that will help us."

(You and I are going to take comfortable chairs in Personnel Manager Richardson's office and listen in while he and Dave explore the Art of Making Changes.)

EVERYONE'S AGAINST IT

It's natural and normal (Mr. Richardson explains) to keep most things just the way they are. The term "resistance to change" always implies someone else is trying to change what is rightfully yours, and you, therefore, are against it.

That isn't surprising. In fact, it would be more surprising if we were not against it. Let's start with two principles:

1. Resistance is universal.
2. Resistance is normal.

All of which raise the question:

IS RESISTANCE DESIRABLE?

The human impulse to hold things steady, to maintain the status quo, is essential to our work and to our way of life. When you tell an employee to do a certain thing in a given way, you can expect him to do it that way repeatedly. It would be nothing short of utter chaos if every idea that came into his mind as to a variation were put into effect. If every passing suggestion from another employee steered him on a course different from what he normally steers, you'd have no idea of what was happening once you turned your back. And what is it that insures that the employee will continue to do things the time-tested way? Resistance to change.

Any planning would be impossible, any predictability would be out of the question, if such resistance were not the natural tendency. You wouldn't be at all sure you had a job when you came to work in the morning. Perhaps your boss's boss made a casual reference to how well one of your subordinates was doing and—with no resistance to change—the boss moved the new fellow into your position.

We wouldn't fight wars to defend our homes or our beliefs. Every ambition would be nonsensical and we'd float up and down, down and up, on the ladder of progression.

That's why you can be glad for—but still must try to understand—a man's need for stability, for protection from chaotic change.

Standing up after you've been sitting down is change, of course. This simple statement symbolizes the fact that every movement is change; every improvement is change; every deviation from standard operating procedure is change; every disruption of routine is change.

Change really is constant. More often than not, there is no resistance to it. The truth is that using change as a friend and ally, you spend a lot of time and energy figuring out how to put variety into your life and job. So what's all the fuss about?

We go back to an earlier statement: People don't resist change if it is their own change. The changes you yourself think up are all right simply because they are your own. But people, including yourself, resist changes that other people introduce in proportion as such changes affect their own job and their own welfare.

THE FACT OF CHANGE

A New York bank, aware that its young lady employees spent large portions of their paychecks on clothes to wear to work, went to considerable trouble and expense to help the girls out. The bank brought in a top-notch dress designer. He studied the work situation, then designed five different models of charming and appropriate dresses. The employees were offered five free dresses, made up in any color they wished. They were given additional

By S. G. WILLIAMS
Management Consultant
New York City

freedom to wear whichever one they wanted on a given day, with a different dress for each day of the week. The dresses and designs were superior to the girls' own clothes—more expensive than they would buy for themselves.

Can you guess what happened? Right. Not a single girl took the bank up on its offer. There was mumbling about "we'll pick out our own clothes, thank you," and grumbling about the bank "trying to put us into uniforms."

The safety director of a firm in Memphis had put in 18 years at an old beat-up desk, sitting in a creaky chair with casters that neither rolled nor turned. During his vacation last year, the company officers decided to surprise him. When he came back, he found an elegant, glistening new desk and chair. The officers interpreted the old man's tears as an expression of real appreciation for their thoughtfulness. (You have probably guessed the outcome of this one, too.) Six weeks later, when the safety director was comfortably settled once again at his old desk and chair, they knew his tears had denoted regret at the loss of his old furniture, not gratitude at all.

These interesting examples of resistance to change, where both were efforts to improve situations yet were met with total resistance, lead us to an important question: How can we, as supervisors, make changes that will be accepted?

CHANGE IS CERTAIN

A manager at any level who is not causing changes to be made is failing at his job. Just "keeping things the way they are" not only is inadequate, it is impossible. If we don't move up, we automatically move down. There is, as we all know, no such thing as standing still in a business environment.

Take an extreme example. Go out and look at the people in your department. Now, while you're looking, just imagine that everybody and everything stopped right where they were and stood still for an hour. After the hour, would everything go on exactly as before?

Wouldn't the rust process have begun on some machine parts? Wouldn't some machines—and some people—have to be warmed up again before they were operating up to the same level of capacity? Yet, during that hour, taxes would have continued to mount; overhead would have gone up; the profit-and-loss statement would have been affected by the lost hour of production. No, we can't possibly stand still. We have to move ahead. That means change.

There are certain principles, skills, or methods for creating successful change. All are essential. Using one or two without the third will almost guarantee failure. Using all three will not assure success, but it will greatly increase your chances of coming out on top. Underlying the selection of these methods is one important question: What do we need changed?

1. KNOW WHAT TO CHANGE

Change simply for its own sake is futile. It will only cause confusion and make it more difficult to effect needed changes later. So you should have a clear-cut idea of what, specifically, ought to be changed.

Associated with this is the necessity of finding out, as much as possible, what and who are involved in, or will be affected by, the change. We are all familiar with the situations in which things are not going well, so the boss (it could be ourselves) rushes in and starts to change everything in sight. Not surprisingly, he often ends up with a much bigger mess than he had at the beginning of the change.

2. KNOW WHY

An operation, a schedule, a layout, a plan—these or any other aspects of your activities may suggest the advisability of a change if:

- The present procedure is not working well. It conflicts with something else. It is too costly or time-consuming or impractical.
- An improvement appears to be possible, even though present methods are all right.

Often because necessity is the mother of invention, these two bases combine. Any introduction of the change process requires a careful understanding and statement of the basis—the "why" of the change.

3. LET OTHERS HELP

The others are everyone who is involved and everyone who is going to feel the impact of the change. Going back to the earlier comments in this "Pointers," where we talked about why we resist change, we recognize that this is far and away the most important single factor in overcoming resistance.

Sometimes it is possible to let your subordinates take part in all three steps of the process. They can help to identify the area where the improvement is needed. In fact, being closer to it, they may be in a better position to detect the specific "what" to change. On the other hand, their being close may be a disadvantage, one that you overcome by your own wider view of the whole department.

The employees are the source of your knowledge about why a modification should be sought; it is their complaint that alerts you to the need. Often your subordinates will have more ideas about how to bring about the change.

Let them tackle the problem. Let them mull it over while they're working. Get together in a group or groups and discuss it. Get them to go home and talk with their wives about it. You can call them over to your work place or stop at the lunch table and put it to them.

Imagine that you approach them by pointing out that nobody is very happy about the present layout. The men are working in it every day; they know the problems. Why not let them think about it for a while and come up with suggestions. Ask them, "What kind of layout would make it easier for you?"

Then, when they do come back with their ideas, pay attention to them. Don't belittle a single suggestion, or argue against any of them.

The results can be astonishing. Your subordinates will put every ounce of their energy into aiding whatever new layout you finally use. They'll be proud of, and boast about, each little part of their ideas that you weave into the change.

You'll have your improvement. You'll have acceptance and cooperation—even appreciation—because you made the change go through that vital, critical transformation and become *their* change.

Ever think just how costly a motor breakdown is to you? With the average breakdown time of a spinning-frame motor, you could doff 15 frames. Here's how to cut out motor failures right from the start.

How to Install Your Production Motors

TAKE A FEW minutes out of your busy day and think just how important your electric motors are. If your mill is even half way modern, you've got individual motor drives on more than three-fourths of your machines.

What if failure struck all of these motors at once? Chances are it won't. But without correct installation, plus sound maintenance, failure is sure to strike. And it may hit when you're least prepared.

Say you're running an average-size cotton mill with 49,000 spindles and 1,168 looms. One spinning frame down can ruin your mill efficiency for a week.

In spinning, it will take your assistant overseer 30 minutes to write a work order and get it to the electrical shop at a motor breakdown. Then if your shift electrician is ready to come to the spinning frame at once (and chances are he'll be out on another job), you've lost 15 minutes more of production time in getting him to the down spinning-frame motor.

He takes another 30 minutes to check the motor before he finds he'll have to replace it. So with trips to and from the shop, he loses another 1½ hour in putting on a new or repaired motor.

So you've lost 2 hours and 45 minutes of production. With 240 spindles on the frame, you've lost 560 spinning hours.

Figured another way, you could have doffed 15 spinning frames in that time.

In weaving, you'll come out a little better on a motor breakdown because the smaller motor can be handled and replaced faster. But because you have more loom motors, you'll naturally have more breakdowns. Average motor replacement in weaving is 2 hours. But even one short downtime per week costs you in over-all efficiency. And within this same time you could retie two warps.

All this is why it makes good sense to install motors right—and set up a scheduled maintenance program and carry it through.

The true measure of an installation card maintenance program for induction motors is its effectiveness in preventing trouble. Because motors are basically related to production, heavy financial loss is likely if this program is not effective.

To forestall trouble, your program must be built around a systematic and regular check of parts that are likely to deteriorate or wear. You can lump your common operating troubles for motors into three categories of roughly equal importance: bearing troubles, winding troubles, and other troubles.

SIX SIGNS OF TROUBLE

Troubles are caused by six bad conditions. These conditions work as follows:

1. Dirt and dust. These damage bearings and insulation. And when they restrict ventilation and heat dissipation, winding failures result. Another harmful result is vibration that results when dirt throws rotating parts out of balance.

2. High ambient temperature. This damages lubricant, bearings, and insulation.

3. Moisture and corrosive atmospheres. They rust and corrode motor parts, destroy lubricants.

4. Poor lubrication. This causes friction and excessive heat in the bearings. In turn, the bearings heat the windings.

5. Overloading the motor. This overloads the bearings and heats the windings excessively.

6. Vibration. It causes mechanical or electrical failures in all parts of the motor.

OVERCOMING FAULTS

These conditions aren't as formidable as they sound. You can always reduce the magnitude of the conditions. And you may even completely eliminate some of them. For example, you don't have to tolerate poor lubrication or overloading.

But other hazards, such as corrosive atmospheres or high ambient temperatures, may be characteristic of the application and may be im-

By J. W. SAMZELIUS and R. F. WOLL,
Motor Engineering Dept.,
Westinghouse Electric Corp.,
Buffalo, N. Y.

practical to change. In such an instance, you must install the appropriate type of motor. Example: a totally enclosed motor or a motor with a Class-B or Class-H insulation.

Your first step in motor efficiency and long life is correct installation. But before you install a new motor, inspect it to be sure it has not been damaged during shipment or in storage. Turn the shaft through 360 degrees to see that the rotor turns freely. For motors with sleeve bearings, make certain the oil level is adequate and the oil ring follows the shaft. Check the nameplate to be sure the motor is compatible with the voltage and frequency of power.

When you mount the motor, make sure it can get all the ventilating air it needs. If adjacent guards or adjacent machines obstruct the free flow of air, the motor may not meet the specified temperature rise.

Bolt the motor down to a rigid foundation with the largest bolts the holes in the feet will accommodate. The motor must rest evenly on all four feet. You may have to use shims to level it.

When you mount dripproof motors with horizontal shafts on a wall, you must rotate the end brackets 90 degrees to maintain normal dripproof protection. The end brackets of motors mounted on the ceiling must be rotated 180 degrees.

You can mount grease-lubricated ball-bearing motors at any angle. But you must rotate brackets for oil-lubricated ball-bearing or sleeve-bearing motors if they are mounted on a wall or ceiling to keep the oil in the reservoir and allow the oil to flow properly by gravity.

Except for directly connected drives, the most common way to transmit power from a motor to a driven machine is by a belt drive. Of the variety of belt drives available, the most common are flat leather belts on crowned pulleys, and V-belts on grooved pulleys.

GETTING RID OF TENSION

Regardless of the drive you use, you should protect the bearing at the pulley end from excessive loading. You can do this by making sure that the pulley is mounted near the bearing and that the belt is not tighter than is needed for transmitting normal torque without undue slippage. Too much tension will shorten bearing life, will cause vibration and shaft breakage, and will cause overstress right on the belt.

For all belt drives, make sure you have a way to adjust belt tension. The most common and satisfactory way is with simple slide rails bolted to a solid foundation. Proper belt tension is attained best by adjusting the belt so that some slippage occurs at peak loads or at starts under loads.

High inertia in the driven machine usually is equivalent to starting under full load. A belt that never slips is too tight.

TENSIONING V-BELTS

When you adjust tension on V-belts, remember that V-belts are designed to be run with less tension than flat belts because traction is obtained by wedging action in the tapered grooves of the pulleys. Because of the relatively great thickness of a V-belt, it must not be run on pulleys that are smaller than those recommended by the belt manufacturer.

If you want varying speeds of the driven shaft, you can use variable-pitch pulleys. Since these pulleys have about twice the face width of a fixed pulley for the same number of belts, and consequently over-

CORRECT instruments are important for your motor program. Instruments available for studying motor loading and performance range from a simple ammeter to this portable motor analyzer.

hang a greater distance from the bearing, you should have the bearing capacity verified by the motor manufacturer before you use a variable-pitch pulley on a standard motor to get varying speeds.

Chain drives synchronize driving and driven shafts. Because a chain drive is even more susceptible to improper tension than a belt drive, a sliding base should be provided for easy adjustment.

Once the tension is properly adjusted, make sure the drive is protected from tampering by unauthorized employees.

Because chains wear unevenly if they are not aligned correctly, a chain must not be so wide that shaft deflection affects alignment. The chain usually is enclosed in an oiltight housing and is run in oil. At high speeds, drip oiling is almost always best.

AVOIDING DRIVE TROUBLE

When a motor is geared directly to the load, usually a common bedplate is used and the motor is doweled in place to retain proper gear mesh. For spiral or helical gears, the pinion must not cause excessive thrust load on the motor bearings. Ball bearings can sustain such axial thrust but sleeve bearings are overloaded.

For direct drives or coupled drives, as for gear drives, the motor and the driven machine are mounted on a common bedplate and doweled in place to retain precise alignment.

Flexible couplings permit a reasonable amount of misalignment and often make the connection. But unless the shafts are closely in line, vibration and fatigue failures result.

Do not mount pulleys, pinions, or couplings by striking heavy blows unless you take precautions to prevent reactions on the bearings. To protect the bearings from such forces, back the shaft adequately at the opposite end, as shown in the photo below.

CARING FOR CONNECTIONS

When you make electrical connections, make sure that the voltage, frequency, and phases of the power supply agree with the nameplate rating of the motor. Although most motors will operate satisfactorily over a 10% variation in voltage or a 5% variation in frequency, their performance may not equal that of motors operating at normal rating.

Make motor-lead connections by the connection plate. Use a suitable switch and overload protection for connection to the power supply. Observe the National Electric Code and local requirements for all wiring and fusing.

When the motor-conduit box is not tapped to receive rigid conduit, enter the conduit from above the motor.

Where conditions justify it, the same method can be used on conduit that enters from the sides. Use flexible conduit when the motor is mounted on slide rails for belt adjustment.

After making connections, operate the motor without the load to check the connections and the direction of rotation. To change the direction of rotation on three-phase motors, interchange any two line leads. To change the direction of rotation on two-phase motors, interchange the line leads of either phase.

Because large high-speed motors have unidirectional fans, the direction of rotation of the motor and the driven machine must be matched. Matching is particularly important for large totally enclosed fan-cooled motors.

PROTECT motor bearings when you mount pinions, pulleys, and couplings by backing the shaft at the opposite end. This way, you save trouble later on, avoid costly downtime, too.

TEXTILE WORLD . . . COST CUTTERS

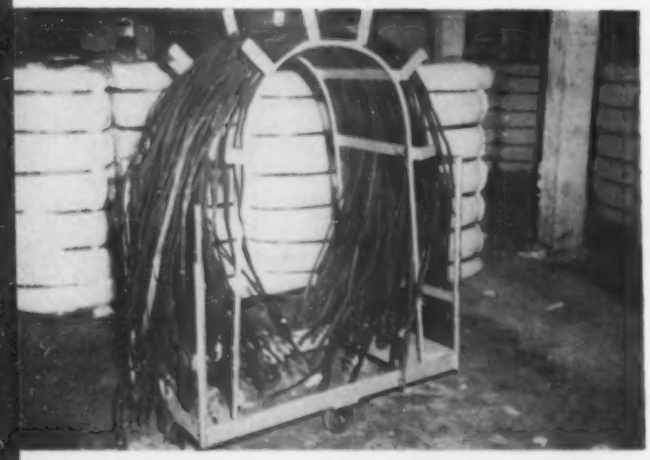
Gasket Saves Expensive Bearing

Riegel Textile Corp., Ware Shoals, S. C., has reduced the maintenance on bearings for its print-blanket washers by using a gasket material that closes the gap between roller shaft and washer frame.

In this washer, a spray of boiling hot water is directed against the print blanket as it passes over the roller shown in the photo.

The bearing of the roller is mounted outboard, but even so the hot water got to it because of excessive clearance between the roller shaft and the hole provided for it in the frame.

Riegel's maintenance department cut a piece of heat-resistant gasket material to fit the shaft exactly, then placed it between frame and bearing housing Result—Maintenance costs have dropped 300%.



Cost of Baling Drops 1,500%

Carolina Mills, Inc., Maiden, N. C., has cut the cost of steel ties 1,500% in a special baling operation by substituting reusable Aldrich ties in place of ordinary steel strapping.

The mill recently established a central opening room where cotton is preblended. Blended from 24 bales, the cotton is wrapped with polyethylene film held in place by steel strapping.

In the beginning, the ties were cut off the bales and thrown into the scrap heap at a cost of 30¢ per bale. Then someone in the organization thought of reusable ties. Reusable ties can be used 40 to 50 times at an initial cost of 75¢. Regular steel strapping at 30¢ per bale runs the cost up to as much as $15.

Hoist at Winder Improves Jobloads

A mill-designed hoist-and-conveyor-belt assembly to supply empty bobbins to Whitin-Schweiter filling winders at Flightex Fabrics, Inc., Clifton, N. J. (now Pawcatuck, Conn.), has taken all manual handling out of the job and has increased job-loads.

Formerly the job of hoisting empty bobbins was done by hand. Now the bin (at the top in photo) is lowered to truck-top level to be filled. Then the motor on the platform raises the full bin to operating position.

From the bin, bobbins move by conveyor belt to each head of the winder and then go into winding position. Before this new installation, winder operators had to position each bobbin. Now operators have more spindles to tend.

Cleaner Makes Broom Obsolete

Manual cleaning time has been cut 50% by the installation of a Parks-Cramer frame cleaner and floor sweeper in one of the spinning rooms at Beaumont Div., Spartan Mills, Spartanburg, S. C. The equipment is expected to pay for itself in about two years.

Spinners still do some manual cleaning but interval between cleaning operations is twice as long as before. Twelve spinning frames are covered.

The vacuum floor sweeper picks up about 12 pounds of lint per 8 hours and automatically discharges it into a special collecting unit located in one corner of the room. Periodically, the collection unit is dumped into a truck and the waste is hauled out to the waste house.

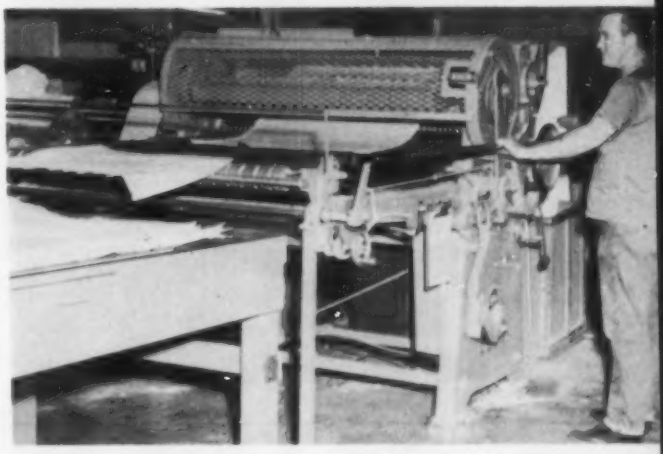
Sheet Cutter Doubles Production

If you are now cutting piece goods for items such as curtains, sheets, pillow cases, draperies, etc.—here's how you can increase production, save space.

The Julian Noa Co. of Dallas, Tex., produces curtains using standard cutting tables. Recently they installed a sheet-cutting machine manufactured by Charles Beck Machine Corp. Savings:

1. The floor space required for one cutting operation was reduced by 150 feet.
2. Cutting waste was reduced by 25%.
3. Cutting room operates with 8 less people.

The sheet cutter operates at 50 cuts per minute (40 net) or 2400 per hour net. On normal cutting operations one man can produce 1,000 units per hour.



Lighting: Up; Production Costs: Down

Following four relighting programs (with lamps and engineering by GE) at Bachman-Uxbridge Worsted Corp., Macon Ga., production has increased 10.5% and mending costs have dropped 39.6%.

Over a period of several years, Bachman-Uxbridge has raised its over-all plant lighting level from 16 to 70 foot-candles.

Based on this progressively improved record, the weave-room lighting level is now well over 100 foot-candles. Troffer rows spaced on 5½-ft. centers provide the cost-cutting lighting system.

Management men are currently planning greater lighting economy by installing Power Groove lamps. The estimated hourly cost per foot-candle for each 10,000 square feet at the mill is 1 1/10¢.

COST CUTTERS ... *Begins on page 64*

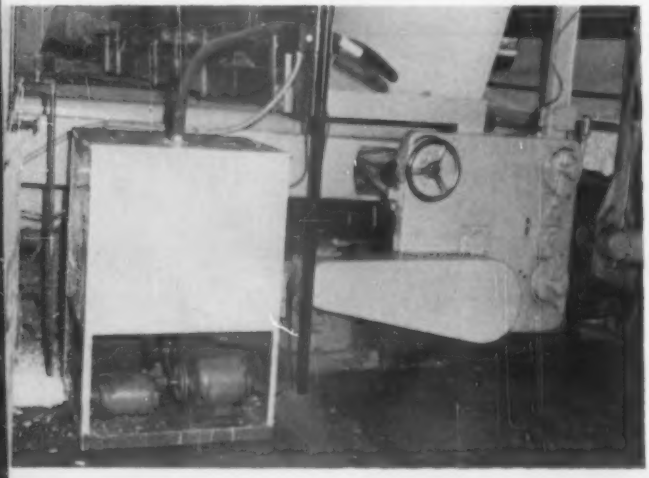
Sealed Bearings Cut Maintenance

By replacing open-type ball bearings with completely sealed units, Reeves Bros., Fairforest Finishing Div., has reduced maintenance costs 300 to 400% in several hard-service spots.

Early applications include the caustic saturators in the continuous bleaching system. As older bearings fail in the progressive boil-offs, mercerizer recuperators, and wash boxes, Fairforest is replacing with sealed bearings.

J. C. Newman, superintendent of maintenance, says: "We really don't know when the new bearings will fail. The old ones lasted 3 to 4 months; some of these have been in service a year and are still going strong."

Bearing housings are made of cast iron, and two seals keep grease in the bearing and in a protective area between the bearing and the endplate.

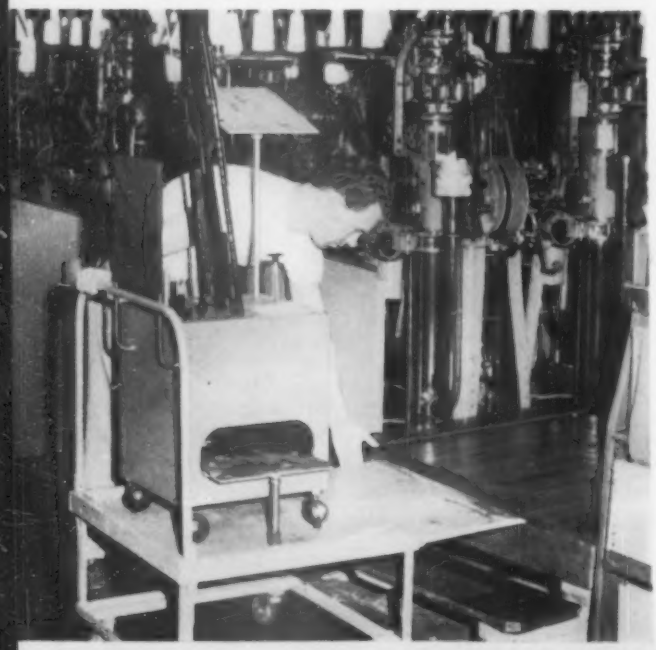


Suction Removes Tricot Trimmings

Milco Undergarment Co., Bloomsburg, Pa., moves tricot selvage trimmings as fast as they are produced on the drying tenter by a partial vacuum created by two centrifugal blowers.

The selvage trimmings are picked up by flexible hoses that attach to a large container mounted to one side of the tenter. The intake side of each blower is connected to this receiver. At start up, the selvage is guided into the end of the flexible hose, and it requires no further attention.

The receiver is emptied at convenient intervals during the day. With this method of removing trimmings, the frame back tender is able to devote full time to his primary duties of inspection. Older methods involved considerable attention and containers took up floor space in a crowded area.



Less Checking, Better Hosiery

Acme Hosiery Mills, Asheboro, N. C., is cutting seamless-hosiery manufacturing costs and making more uniform hosiery with fewer operators and testing cycles by using the newest Volumet hosiery-measing instrument (TEXTILE WORLD, April '60, p. 122).

By eliminating the need of lowering the Volumet (Joseph C. Cobert Associates) to the main-floor level, this portable device speeds the testing.

Fewer tests are required because (1) the instrument permits all three operators to use identical standards for every part of the gray stocking, (2) test reports provide management men with a statistical test history of each machine so that mechanical failures can be corrected, and (3) a reasonable tolerance in the length of each component of the stocking is permitted to avoid overadjustment of machines.

TEXTILE WORLD . . . News from the Mills

Batesville Co., Batesville, Miss., has started a 5,500-sq.-ft. expansion of its plant.

Berkshire Woolen Co., Pittsfield, Mass., will close the Pittsfield, Mass., and Moncks Corners, S. C., plants as the initial step toward dissolution of the corporation.

Burlington Industries, Inc., Greensboro, N. C., has formed Burlington International at Glarus, Switzerland.

Clinchfield Mfg. Co., Marion, N. C., has installed a 660-ton refrigeration unit in its No. 1 mill. This is part of the company's conversion of this plant to the production of fine combed-yarn fabrics. When in full production, the mill will produce 350,000 yards weekly in combed fabrics.

Erlanger Mills, Inc., Lexington, N. C., has completed an improvement program costing more than $750,000.

Fieldcrest Mills, Inc., Spray, N. C., has purchased all machinery and equipment of Greenville Mills, Inc., Greenville, N. C. The plant will be known as Fieldcrest Mills, Inc., Karastan Spinning Div.

Harding Carpets Co. Ltd., Brantford and Guelph, Ont., Canada, is completing a $2-million expansion program in its plants in the two cities. It includes a $500,000 expenditure for tufted carpeting. This is the first time the company has engaged in tufted production.

Henderson Cotton Mills, Henderson, N. C., used a new construction method for its expansion program by converting a one-story building into a two-story structure. The roof of the plant was literally raised 15 feet, adding 16,320 square feet of production space.

Indian Head Mills, Inc., Cordova, Ala., has made plans to scrap four of the six plants recently bought from the Bachmann Uxbridge Worsted Co. All manufacturing operations will be consolidated at the Talladega, Ala., and Cedartown, Ga., plants. Executive and sales headquarters will continue in New York City. Operation has been discontinued at the Uxbridge and Rivulet, Mass., and Putnam, Conn., plants. It is also planned to discontinue operations at its Macon, Ga., plant.

Jamestown Mills, Jamestown, N. C., has announced plans for extensive expansion and modernization which will more than double the mill's production. The new looms and auxiliary equipment, for the production of filament and textured-yarn nylon upholstery fabrics, will be housed in a new plant wing.

La Hormiga, Mexico City, Mexico, has announced that it will completely modernize its plant and install modern textile machinery. The expansion will cost $800,000.

Lion Ribbon Co., Inc., New York, N. Y., has announced that its division, Lion Ribbon Affiliates, has acquired the plant of H. Brothers Narrow Fabrics Co., Inc., formerly Hausman Fabrics Co., Inc.

M. Lowenstein & Sons, Inc., New York, N. Y., has announced that the newly formed Clark-Schwebel Fiber Glass Corp. has made plans for the construction of a $3-million fiber-glass weaving and finishing plant in Anderson, S. C.

Massachusetts Mohair Plush Co., Inc., Neisler Div., Kings Mountain, N. C., has leased the machinery and plant of Dover Yarn Mills at Boiling Springs, N. C.

Reeves Brothers, Inc., New York, N. Y., has bought the entire production, and sales operation of Curon, from Curtiss-Wright Corp.

Rosedale Knitting Co., Inc., Reading, Pa., has merged with two of its subsidiary companies, Carolina Lee Knitting Co., Madison, N. C., and Virginia Lee Hosiery Mills, Inc., Hillsville, Va. The newly formed company will be known as the Rosedale Knitting Co.

Sanco Piece Dye Works, Phillipsburg, N. J., has a $365,000 new-equipment program under way. An additional $70,000 is being spent for remodeling present machinery.

Sterling Hosiery Mills, Spindale, N. C., has announced plans for getting the Spindale plant back into full production as soon as possible.

J. P. Stevens Co., New York, N. Y., has announced that its new finishing plant, the Delta No. 2 in Cheraw, S. C., has been placed in production. The plant is handling man-made-fiber blends of the firm's Victor and Greer, S. C., plants.

Tarboro Textiles Inc., Tarboro, N. C., is the name of the newly formed industry, a subsidiary of Botany Mills, which will manufacture knitted pile fabrics.

Thomas Taylor & Sons, Hudson, Mass., has announced the acquisition of Geering Textile Print, Inc., Fair Lawn, N. J.

Thornton Knitting Co., Denton, N. C., has started a plant addition —its fourth in the last six years. The new addition will be equipped with the latest boarding and looping machinery.

West Point Mfg. Co., West Point, Ga., has installed a new steam boiler with a capacity of 80,000 pounds, costing more than $500,000. It is now in full operation at the Fairfax Mill Div., following an extensive testing period.

Wiscasset Mills Co., Albemarle, N. C., has announced plans for construction of a new building. The plant will house its Yarn Dyeing Dept. at Albemarle.

LOCKS 'EM IN OR OUT -LONGER

NEW LATEX FOR TEXTILES

RESYN® 3600

POLYVINYLIDENE CHLORIDE

RESYN 3600 is a water dispersed polyvinylidene chloride that promises a revolution in protective coatings and finishes. For the first time, it combines exceptional barrier properties with simple low cost application by sizing, padding, coating or spraying. It offers important new advantages:

MOISTURE—Moisture vapor transmission is 2½ to 5 times lower than that of polyethylene. **ODORS**—Resistance to transmission of common gases 1000-2000 times greater than polyethylene. **CHEMICALS**—Almost complete non-reactivity to concentrated acids, solvents, alkalies and other corrosive materials. Grease and oil penetration is nil. Fire retardancy is excellent.

RESYN 3600 is suggested for industrial fabrics, work clothing fabrics, denims, filter clothes, military fabrics, awnings and tarpaulins, etc. It is also recommended as a binder for non-woven fabrics.

Experimental lots of RESYN 3600 are now available. A 14 million lb. plant will be on stream this fall. Write for information.

National RESINS

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TEXTILE WORLD

CHEMICAL TREATMENT AND FINISHING

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THE INHERENT PURITY OF DIAMOND CRYSTAL SALT IS YOUR KEY FOR PRODUCT IMPROVEMENT!

Diamond Crystal CMF (Calcium Magnesium Free) and Louisiana Rock Salt offer textile and dyestuff manufacturers extremely high purity at low cost. The result? Consistently better products for you.

Protect the quality of your finished product! Diamond Crystal CMF (Calcium Magnesium Free) type salt will help you eliminate streaking and off shades caused by calcium and magnesium in the dye bath. Result: Fewer Rejects—Higher Profits.

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from gdc

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gdc custom technical service

Advances in man-made fibers have created new fabrics with unusual qualities. These modern developments also create new problems for the dyer and finisher, and GDC Technical Service can help you solve them.

The knowledge gained from our years of experience in developing new dyes for the synthetic fiber industry, plus our expanded research and application facilities are at your disposal. We can aid in the formulation of new shades, provide extensive color-matching service with combinations that will meet all your end requirements, help improve your dyeing methods, provide technical assistance, and aid in any other dyeing problems you might encounter.

Why not get in touch with your local GDC Technical Service Representative and see how our custom color service will benefit you? For example, we suggest that you try a combination of our Genacryl Red 4B and Genacryl Yellow 4G for the most economical Jockey Red shades on Acrylic fibers. Remember, we're always at your service.

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gdc dyes for synthetics... ready re

developed to fulfill individual fiber requirements

DYE	TYPE	Acetate	Acrilan[1]	Acrilan 16[1]	Arnel[2]
Acid Alizarine Anthralan® Genalan® Sulphon® Supramine® Supranol®	ACID		■		
Palatine®	ACID METALIZED		■		
Naphthol Fast Color Bases	AZOIC	■	■		■
Genacryl®	CATIONIC (Basic)		■	■	
Benzofix® Fastusol®	DIRECT				
Diaminogen® Diazo Oxydiaminogen® Zambesi®	DIRECT, DEVELOPED				
Celliton® Genacron®	DISPERSE	■	■	■	■
Cellitazol®	DISPERSE, DEVELOPED	■	■		■
Anthracene Chrome Chromogene® Chromoxane®	MORDANT ACID (Chrome)		■		
Supralan®	NEUTRAL METALIZED		■		
Indo Carbon® Katigen®	SULFUR				
Algol® Indanthrene®	VAT				
Algosol®	VAT ESTER (Soluble)		■		

To help you keep abreast of new dyeing proc
booklet, "The Dyeing of Synthetic Fibers." Fo
Representative nearest you.

†Company Trademarks: (1) Chemstrand Corporation;
bama), Inc.; (4) American Cyanamid Co.; (5) E. I. du Po
Union Carbide Corporation; (7) Eastman Chemical Pro

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PROVIDENCE • SAN FRANCISCO • IN CANADA: CHEMICAL DEVELOPMENTS

ly reference dye application chart

FIBERS†

Arnel[2]	Corval[3]	Creslan[4]	Dacron 54[5]	Dacron 64[5]	Darvan[2]	Dynel[6]	Kodel[7]	Nylon	Orlon[5]	Topel[2]	Verel[7]	Vycron[8]	Zefran[9]
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ation; (2) Celanese Corporation of America; (3) Courtaulds (Ala-
du Pont de Nemours & Co.; (6) Union Carbide Chemicals Co., Div.,
al Products, Inc.; (8) Beaunit Mills, Inc.; (9) Dow Chemical Co.

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Textile Chemicals

By ROBERT W. PINAULT, Associate Editor, TEXTILE WORLD

N. C. State Tracks Acid Damage to Its Source

The cause of complaints of nearly total disintegration of laundered garments was found to be far from the finishing plants in an investigation conducted recently at N. C. State School of Textiles.

Prof. Kenneth S. Campbell, who tracked down the trouble, first suspected excess bleaching agents, but a study of the operation indicated that this was unlikely. The next suspect was the natural gas that is the source of heat in the tumbler dryers. Two dryers were set up, one heated with natural gas, the other with L-P gas.

After 16 cycles of wetting and drying, the load in the L-P-heated dryer was reduced to shreds, the fiber having a Cu Am fluidity of 40 rhes. In the natural gas heated dryer, the goods were undamaged.

The original garments had all been dried with natural gas; so it was obvious that some other influence than L-P gas had ruined the garments.

Further investigation revealed that the garments had been dried on two different days, one hot, the other cold. And near the dryers was a small perchlorethylene drycleaning machine that had been in operation on the cold day.

Upshot of the whole thing was that fumes from the perchlorethylene had been dragged into the intake of the L-P-fired dryer. The open flame decomposed the perchlorethylene vapors to produce first phosgene, then HCl, which was the damaging agent. Goods dried during the hot weather when doors and windows were open didn't get damaged because ventilation was much better. Normally, drycleaning equipment is vented to prevent accumulation of fumes in a working area, but in this case legal requirements hadn't been met.

Search for Fabric Fungicide: Eight Metal Salts Provide New Answers

A comparative study of ten laboratory-prepared metal-8-quinolinolate compounds to determine their effectiveness as protective treatments for fabrics exposed to weather has been conducted at the USDA's Southern Utilization Research and Development Div. in New Orleans, La.

The studies were a part of the cooperative program of research by the Canvas Products Association International and the Southern Division.

Copper-8-quinolinolate as a fungicide for canvas awnings and other fabrics exposed to outdoor weathering meets most of the requirements for such treatments, except that it imparts a yellowish-green or light olive drab color to the fabric, which is objectionable in some light striped awnings and other decorative outdoor fabrics.

Other metals selected for this study were aluminum, bismuth, cadmium, chromium, cobalt, copper, iron, manganese, nickel, and zinc. The 8-quinolinolate salts of these metals were prepared, classified as to color, exposed, and evaluated for this fungicidal effectiveness as well as for their effect on the rate of fabric degradation.

Colors of the treated canvas ranged from dark gray imparted by the iron salt to cream, produced by the manganese salt. The lightest, a very light yellow, was produced by the nickel salt. Commercial and laboratory-prepared copper 8, and zinc and aluminum 8 showed no visible mildew growth at the end of the weathering period. The fabric treated with commercial copper 8 showed the highest level of strength retention (69-70%).

Details of the tests are given in a paper, "A Comparative Weathering Study of Different Metal 8-Quinolinolates," by Edward L. Patton, Canvas Products Association International Research Fellow, and W. Norbert Berard and Ralph J. Brysson, of the Southern Division. Single copies of the article may be obtained without cost from the Southern Utilization Research and Development Div., P. O. Box 19687, New Orleans 19, La., by requesting Reprint No. 1990.

. . . Turn the page

Pick the Right Resin To Get Good Wash-Wear

A report from Germany indicates that good wash-and-wear effects, minimum strength loss, and little or no effect from chlorine can be expected even with nitrogen-bearing resins if the resins used are carefully selected.

Experiments show that dimethylol-dihydroxyethylene urea is superior to dimethylolethylene urea, not only in respect to lightfastness of dyeings but also in stability to chlorine.

Relatively small amounts of the former resin produce good results when zinc chloride is used as a catalyst. Chlorine stability, however, still depends to a great extent on proper curing with the right catalyst.

Dimethylolethylene urea is only stable to chlorine if it is mixed with a buffer compound such as dimethyloltriazinone, according to the report. Magnesium chloride is the preferred catalyst here.

Dimethyloltriazinone gives good wash-and-wear effects in its own right; and when it is combined with dimethylol-dihydroxyethylene urea, strength and abrasion resistance of the fabric are better.

Lactones and Sulfones Play Key Role In Boosting Nylon Fiber Dye Uptake

Polyamide fibers can be made more hydrophilic, are less apt to build up static, and will acquire considerable affinity for basic and other dyes if they are treated according to British Patent 839,891.

Fibers that contain the—NH·CO—group can be reacted with propiolactone, butyrolactone, propanesultone, and butane sultone or other aliphatic lactones and sulfones, and aliphatic and aromatic sultones may be used instead.

The fiber, yarn, or fabric is first treated in a 20% solution of caustic soda at room temperature, squeezed out, and let lay for 30 minutes. Then it's put in a liquor containing, say, a dispersion of 60 parts of propane sultone in 140 parts of water or a solution of the sultone in toluene or other organic solvent.

This reaction takes about 1½ hours, after which the goods are washed. The reaction is exothermic and the temperature may rise to 43 C.

The chemical combination between fiber and reactant should not exceed 3%, which is determined by titrating the modified fibers with N/10 caustic soda. The new properties are fast to repeated washing because the groups are chemically bound to the fiber.

Colorless Dye Helps Make Nylon Stainproof

Fruit juices, tea, and soft drinks won't stain white nylon so readily if it is first treated with substances such as arylalkyl phenol sulfonic acids, naphthalene sulfonic acid, or dialkyl sulfonic acids.

These chemicals act as dyes and occupy die sites that other wise would pick up the coloring matter from beverages.

The stainproofing is said to be particularly effective if titanium dioxide is present—the usual delustering agent in matt polyamide fibers.

Proprietary products that are suitable for the purpose are Erional NW (Geigy A.G.) as well as Nylolan (Sandoz A.G.)

Molten Metal Now Makes Coating for Glass Fiber

Sheets of fibrous glass can be coated with an impervious sheet of metal, according to U. S. Patent 2,951,771, granted to Charles K. Butler and assigned to Owens-Corning Fiberglas Corp.

The glass mat is passed through a bath of molten metal at a temperature below that of the fusion point of the glass, and is then drawn up between rollers that force the metal into intimate contact with at least the surface members of the glass mat. The process is continuous.

Wet Fixation of Resin Cuts Strength Losses

Cellulosic fabrics that are treated with aminoplast resins for purposes of rotproofing retain practically all their original strength if the resins are cured under wet conditions instead of the usual dry method.

Ciba Ltd., Switzerland, has found that a melamine-formaldehyde or similar resin can be applied to cotton yarn in a water solution with a suitable catalyst, and the treated material is then subjected to temperatures of 80 to 130 C. under conditions that preclude drying.

The proportion of resin fixed in this way that is fast to boiling water is 98 to 100% compared to only 2% under dry-curing conditions.

Catalysts that produce the necessary acidity to effect a cure in the wet system include monochlorhydrin, diacetin, dichlorhydrin, glycol ethyl ether acetate, and glycol methyl ether acetate.

Chlorinated Ethylene Cuts Out Sticky Hand

One of the drawbacks to antimony trioxide and chlorinated paraffin when they are used together to produce a flame-resistant finish is that the goods develop a sticky, unpleasant hand.

That trouble is completely overcome in a new formulation that includes the addition of chlorinated ethylene or propylene to the mix. The additive should have a molecular weight of 600 to 2,000, and carry 40 to 70% of combined chlorine.

Formulas are generally based on solvent solutions or aqueous dispersions. Solvents such as carbon tetrachloride or trichlorethylene may be used. The latter has less effect on rubber pad rolls.

A typical fire-resistant formulation is:

- 100 parts liquid chlorinated paraffin wax (70% combined chlorine)
- 100 parts chlorinated polyethylene (mol. wt. 1,200 to 1,500 with 60% combined chlorine)
- 160 parts carbon tetrachloride
- 50 parts antimony trioxide

New Finishing Process Improves Wool Blends

Serious pilling of wool-polyester blend fabrics is said to be cut out by a finishing process shortly to be released for commercial purposes, according to the Fiber Div. of Imperial Chemical Industries Ltd.

The crisp and rather lean hand of such blends as are used in men's and women's wear will also be improved by the finishing method.

From preliminary reports it appears that milling techniques are used to bring a portion of the wool fiber to the surface of the fabric. The wool thus bears a greater share of the abrasion forces that produce pilling with polyester fibers alone.

The process produces a softer hand, and is particularly suitable for 14-oz. or heavier fabrics.

Dispersion System Keeps Carriers In Suspension

Substituted phenols such as cyclohexyl and octyl phenols or octyl cresol are effective dye carriers, but their limited solubility makes it necessary to use them in dispersed form if the concentration is heavy enough to be effective.

Courtaulds Ltd. has come up with a formulation based on soap and a water-miscible lower aliphatic alcohol that insures an even dispersion that persists during the dyeing operation. A typical formula is stated in British Patent 839,707, in which 16 parts of a low-titre soap (based mainly on coconut oil), 27 parts of isopropanol, 25 parts of dimethyl cyclohexyl phenol, and 32 parts of water are used to form the dispersible carrier. The mixture is added to the dyebath at 55 C.

Trace Components Can Affect Viscose Ripening

That noncellulosic trace components in cellulose xanthate solutions have disproportionate effects on over-all physical characteristics of viscose films is indicated in a report released by Buckeye Cellulose Corp.

Marie Easterwood, Buckeye chemist, reported to ACS members on the effects of by-products of xanthate formation as well as trace elements present in the usual reagent solutions.

Better control of trace elements during the ripening stage, said Miss Easterman, would be advantageous.

Resorcinol-Formaldehyde Bonding Agent Aids Adhesion of Rubber to Nylon

Outstanding adhesion of rubber to nylon can be achieved if the fabric is first treated with a resorcinol-formaldehyde condensation product plus a butadiene-styrene synthetic latex.

Recommended procedure is to pad the goods in a solution that contains 80 to 40% of a 10 to 20% aqueous solution of resorcinol-formaldehyde condensate, and 20 to 60% of a 20 to 60% aqueous dispersion of a copolymer based on 60% butadiene, 35% styrene, and 5% N-vinylimidazole. The resorcinol-formaldehyde ratio is from 1 to 2 to 2 to 1.

The goods are let dry from 10 to 30 minutes and then pressed to the rubber at 150 C. at a pressure of 20 kilograms per square centimeter.

Leveling Agent Boosts Wool Chlorination Rate

The acid chlorination of wool with hypochlorite liquors is kept under better control by a leveling agent developed by Cassella Farbwerke, Germany. The product is made by reacting ethylene chloride with a polyethylene-polyamine, which is first made by heating ethylene chloride with ammonia. Another suitable agent is based on the reaction between ethylene chloride and dipropylene triamine.

In a typical shrinkproofing treatment, 1 kg. of wool yarn is treated for 1½ hours at room temperature in 30 liters of a liquor that contains 100 grams sodium acetate, 100 grams 60% acetic acid, 20 grams active chlorine in the form of sodium hypochlorite, and 0.4 grams of one of the two condensation products mentioned above. The liquor has a pH of 5. The usual antichloring and washing treatments follow.

The new leveling agents work at much lower concentrations than those previously used.

Did You Know . . .

. . . that a bismuth electrode is the most suitable for measuring pH from 7 to 14 of textile processing liquors? Tests made in Germany showed that bismuth was superior to glass, antimony, and other materials in stability, service life, and accuracy.

•

. . . that silk fiber is being used as a base for a catalyst? Workers at Osaka University in Japan treat silk in fiber or fabric form with palladium chloride and then hydrogenate the complex so formed. The catalyst is particularly valuable in preparing saturated aldehydes and ketones from the corresponding unsaturated compounds.

•

. . . that even a small amount of crosslinking on regenerated cellulose fiber in the dry state has a great effect in decreasing its solubility?

Studies made at Courtaulds' Research Laboratory, Mobile, Ala., by George C. Daul and Thomas F. Drake reveal that regenerated cellulose that was cross-linked with formaldehyde had proportionately less solubility as the water imbibition rate decreased as a result of progressively greater numbers of cross links were formed. The full report was made to the American Chemical Society at its recent annual meeting.

New Starch—Called Oxytrol—Cuts Down Biological Oxygen Demand of Streams

Biochemical oxygen demand on receiving streams is cut two thirds when warps are sized with a starch developed by A. E. Staley Mfg. Co., Decatur, Ill.

Also, nearly twice the weaving protection is afforded by the product which produces satisfactory warps at concentrations of 5 to 7% solids. Conventional starches usually require 10 to 12% add-on for effective protection in the loom.

The starch is called Oxytrol, and is available in semi-commercial quantities at present. The product is a free-flowing, cold-water swelling, chemically modified starch that can be used over a wide temperature range, from room temperature to boiling. It is mildly alkaline.

What's New In Dyes and Chemicals

Softener

Proxocream . . . provides softening, lubrication, and antistatic effects on fabrics to which it is applied. It has outstanding ability to improve sewability.

The product is nonionic, nonchlorine retentive, and is scorch-resistant. Supplied as a white paste, the softener is easily emulsified and is compatible with most other dyeing and finishing auxiliaries and will not affect dye shades or accelerate the fading rate. Procter & Gamble Co. **(Circle D-1 on Reader-Service Card)**

Dispersing Agent

Carosolv IW . . . is a nonionic product that is water soluble, low sudsing, and stable over a wide pH range. The product is a highly efficient dispersing agent, and it is recommended for soaping of dyed goods, scouring, and bleaching, and as a protective agent where cationic and premetallized dyes are used in cross-dyeing processes. McCarty Aniline & Extract Co. **(Circle D-2 on Reader-Service Card)**

Resin Finish

Resyn 3600 . . . is a vinylidene chloride copolymer that forms clear films that are flexible, nonflammable, and nonblocking.

The resin is resistant to water, acids, solvents, and alkalis, and is particularly suitable as a finish for industrial fabrics and as a superior binder for nonwoven fabrics. National Starch & Chemical Corp. **(Circle D-3 on Reader-Service Card)**

Premetallized Dyes

Lanafast Brown 4 RFP and Lanafast Brown DBL . . . are applicable to wool, nylon, Creslan, Zefran, and Acrilan. The dyes have superior fastness to light and wet processing and are recommended for upholstery, carpets, men's and womens suitings, and sportswear fabrics. Althouse Chemical Co., **(Circle D-4 on Reader-Service Card)**

Extender-Binder

Gloprint Conc., WK-1 and WK-4 . . . has been developed expressly for printing on glass fabrics. Described as a resin polymer, the product can be diluted with water to make an aqueous extender-binder suitable for machine or screen printing.

Prints based on the binder are soft and have good crock resistance. Printing pastes may be prepared with or without solvents; if solvents are used, up to 20% may be incorporated in the mix to produce full bodied oil-in-water printing media. Eastern Color & Chemical Co. **(Circle D-5 on Reader-Service Card)**

Stiffener

Devlex A515 . . . can be used as a spot stiffener for selected areas such as collars and cuffs in garments, and is applied for these purposes by spraying. The product forms clear, hard films that do not yellow on ageing. Although only sparingly soluble in water, the resin can be removed easily from the substrate. Dow Chemical Co., Chemicals Section. **(Circle D-6 on Reader-Service Card)**

Reactive Softener

Rezsoft NI . . . is a fully reactive, nonionic softener that will not retain chlorine or cause yellowing of goods to which it is applied.

Chemically the product is an ethoxylated long-chain alkyl hydroxylate ester, and is marketed as a paste or 100% material. In either form, the product is easily dispersible in water and provides excellent softness, lubrication, and sewability to fabrics. Metro-Atlantic, Inc. **(Circle D-7 on Reader-Service Card)**

Dye Retarder

Devlex 130 . . . described as a functional polymer, is poly-N-vinyl-5-methyl-2-oxazolidinone, and is similar to some naturally occurring proteins. It is capable of accepting soluble anionic and cationic dyes in a bath in competition with the textile fiber present, and partial or complete hold-off of dye from the fiber can be regulated by polymer concentration. Dow Chemical Co., Chemicals Section. **(Circle D-8 on Reader-Service Card)**

Catalyst

Zinc Fluoborate 40% . . . is offered as a catalyst for any of the resins that are being used to produce wash-and-wear finishes.

Under the usual curing conditions of 325 to 350° F., the fluoborate breaks down to release boron trifluoride, the active catalytic agent.

Desirable properties of the chemical include good bath stability and short curing time of 1 to 2 min.

Finishes produced with this catalyst have high crease resistance. Resins that retain chlorine are less susceptible to this fault if catalyzed with zinc fluoborate. Harshaw Chemical Co. **(Circle D-9 on Reader-Service Card)**

Fulling Agent

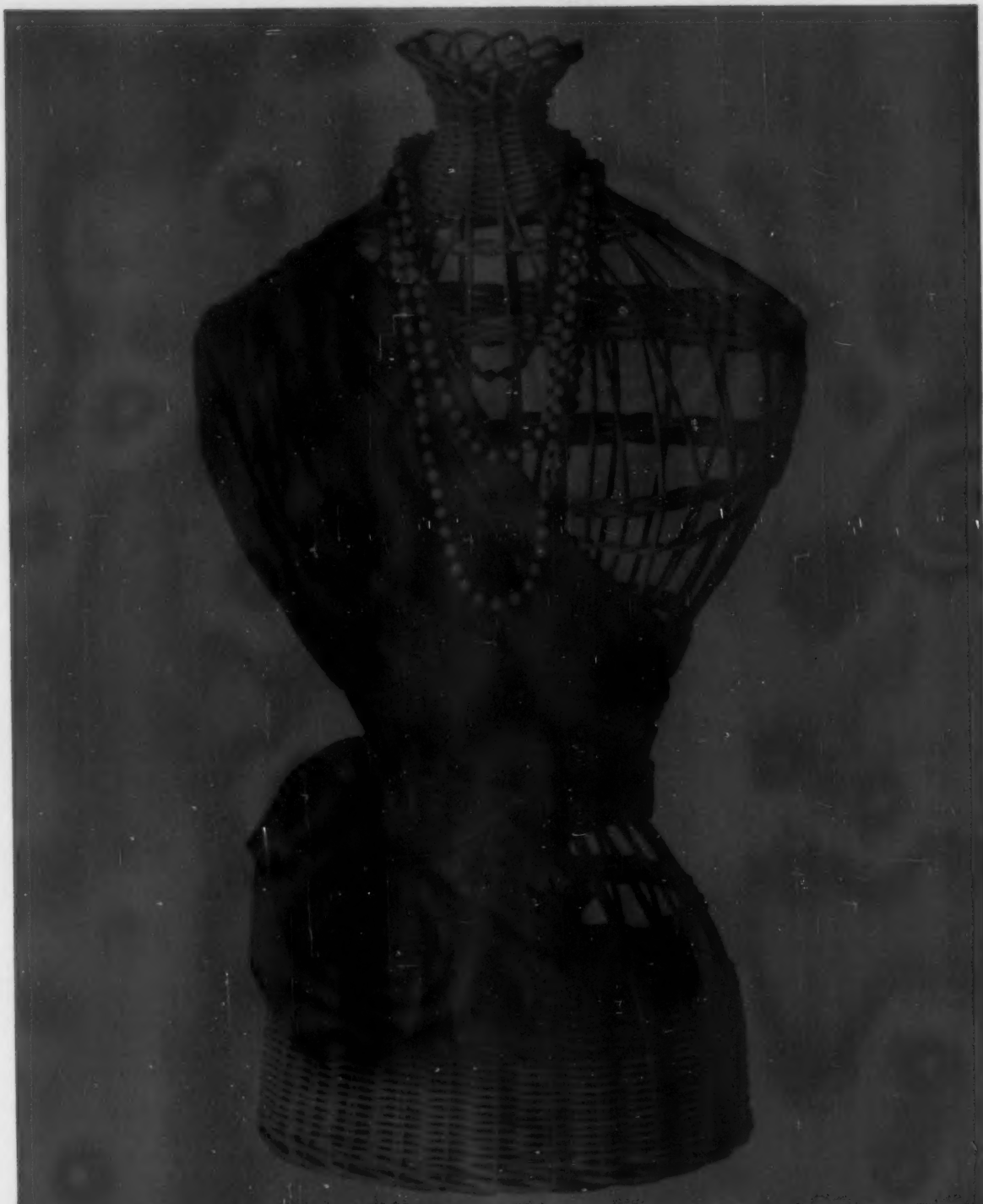
Hamco Full #10 . . . is a modified amino condensate that contains 45% active solids. It is particularly recommended for fulling and scouring woolen and worsted piece goods at a rate of 4 to 8 oz. per gal. plus 2 to 3 oz. per gal. of soda ash.

Good lubricity, emulsifying properties, and ready removal by normal scouring are characteristic of the product. Hamilton Chemical Corp. **(Circle D-10 on Reader-Service Card)**

Cationic Softener

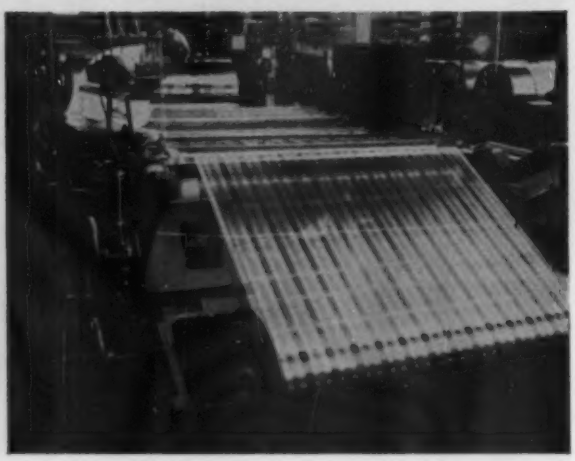
Velvacrest L . . . recommended specifically for man-made-fiber fabrics is a snow-white stable liquid emulsion that is described as a new type of stearic acid amine.

The hand that is produced on fabrics is soft and lofty, there are no shade changes in dyed goods, and whites are not yellowed. Color fastness of fabrics treated with the softener is not affected. Crest Chemical Co. **(Circle D-11 on Reader-Service Card)**



News for the Cotton Printer...Geigy Cuprophenyl® Dyestuffs

for dischargeable ground shades are economical, easy to apply on standard equipment, have excellent dischargeability and outstanding light and wet fastness. Geigy Dyestuffs, Ardsley, N. Y.



FROM STARCH TO FINISH

...Rohm & Haas textile chemicals

There's a work-saving, efficiency-boosting Rohm & Haas product for virtually every step in textile processing and finishing... and in many cases, a number of these superior products *work together* to save time and cut processing costs.

Some examples: ACRYSOL water soluble warp sizes and thickeners; RHOZYME enzyme desizing materials, for speedy removal of starch and proteinaceous sizes; TRITON surfactants and detergents with great emulsifying and wetting power, for fast wetting, thorough detergency and a clean rinse in many different wet processing applications.

Dyeing is more efficient, more uniform with TAMOL dispersing agents, LYKOPON reducing agents, and TRITON dyeing assistants. Printing results get a boost from FORMOPON printing hydro and RHONITE or RHOPLEX pigment binding resins.

Where stripping is necessary, PROTOLIN stripping agents offer powerful color removal over a range of pH. RHOPLEX acrylic emulsions are widely used as backing for upholstery fabrics and binder for non-woven fabrics. RHONITE thermosetting resins impart the popular "wash-wear" finishes.

Along with this complete line of textile chemicals, Rohm & Haas offers complete technical service by a staff of experienced technicians second to none in textile knowhow.

To get more information on the complete line of Rohm & Haas textile chemicals and services write for the new free booklet, Chemicals for the Textile Industry.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

SETTING process is first operation on sweaters. Loaded rack, steaming chamber, make a vapor-tight seal.

CHEMICAL TREATMENT & FINISHING

Managing for Top Dyeing Efficiency

Jeffries Processors has built itself a brand-new plant that's the very picture of efficiency. How? Two ways: (1) Good layout, (2) topflight staff.

IF YOU can pick the ideal plant layout and staff up with topflight management and technical people, chances are you'll have a steadily efficient operation.

Jeffries Processors, Inc., has followed just that prescription. You can see the result in the photo above, and on the following pages.

Jeffries built its new plant (in Albemarle, N. C.) in just four months —on a four-acre plot that adjoins a by-pass highway near town. Generally rectangular in shape, the concrete-block building covers 11,000 square feet of space. The west wall is built so it can easily be knocked out to provide expansion room. There's plenty of room for employee parking, too. As for receiving and delivery areas in the new building, they're easily accessible from any part of the plant.

Today Jeffries produces Ban-Lon and Orlon sweaters and Orlon yarn. Future plans include the dyeing of wool yarn and blends of wool with man-made fibers.

DESIGNING FOR DYES

Jeffries' dyeing machines stand all in a row. They are below floor level to facilitate loading and unloading. The depressed area connects with the drainage ditch, so the dyehouse floor is never flooded when processing liquors have to be dumped.

The sweater-dyeing machines are of open-paddle construction. Two 500-lb. laundry wash wheels scour and bleach white goods.

Capacity of the plant depends on the number of shifts, of course. But the dyeing equipment itself will handle a total of 3,000 pounds of goods at a time. Two loads per shift is what can be normally expected in this class of work.

The Scholl yarn-dyeing machine will carry 200 pounds of Orlon yarn per load. Fully automatic control of time and temperature is possible

BAGGING is next step for sweaters. They go into lined bags before going to dyeing machines.

LOADING into dyeing machines is next stage in dyeing process. Here bagged sweaters go into paddle dyeing machines.

with this machine. A second unit is on the way. It will be hooked up so that 400 pounds of yarn can be dyed the same shade at one time, or two 200-lb. lots can be dyed different shades.

PROCESSING SWEATERS

The color shop is directly back of the line of dyeing machines in a walled-off area. The dyer's office, laboratory, and sample-dyeing equipment are next door to the color shop.

First step in finishing stretch-yarn nylon garments is to steam them to relax the yarn and thus insure bulk and fluffiness in the final product. Jeffries does this by steaming the nylon sweaters in an autoclave.

The equipment consists of two movable racks on which the sweaters are placed and an open-end autoclave that can be raised to permit loading or unloading.

The loaded rack is run under the autoclave, which is lowered to make a steam-tight seal at the flood level. The sweaters are steamed for seven minutes at 280 F.

While the first lot is being steamed, another lot is loaded on the second rack. The process is thus nearly continuous. It will produce up to 4,000 sweaters in an 8-hr. shift.

The relaxed sweaters are then placed in lined Dacron bags. The liners are necessary to avoid snagging the fluffed filament yarn. About 10 pounds of sweaters per bag is an average loading for a 24x30-in. bag. Overloading can cause uneven dyeing. Under loading may cause distortion of the sweaters.

DYEING THE SIMPLE WAY

For light and medium shades, Jeffries uses disperse colors. A typical dyebath is set with 1% of a sulfated alcohol, such as Duponol D, and 1% of trisodium phosphate.

The goods run for 10 minutes, and the temperature rises to 120 F. At this point, the well dispersed dye is added and the lot is brought to a boil and maintained at that temperature for 30 minutes. Dyers take a sample to check the shade and then let the lot run or add color, as necessary.

If more color is needed, the bath is cooled prior to the add and it is then returned to the boil. When the shade is matched, the dyer floods the bath with cool water and gives it a fresh rinse. This latter rinse usually contains from 1 to 2% of a cationic softener to produce a pleasing hand.

Dark shades are usually dyed with acid milling colors. Since control of pH is important with this class of dyes, the bath is set with 3 to 5% of ammonium sulfate plus a small amount of dispersing and retarding agents. Starting temperature is 110 to 120 F. The dyer lets the sweaters run for a few minutes before he adds the dye.

Then the goods are brought to the boil over a 30-min. period. The ammonium sulfate breaks down and the dyebath pH drops to permit exhaustion of the acid dyes. The retarder prevents too-rapid strike, which would cause unlevelness.

For very heavy shades the dyer adds ½ to 1% of glacial acetic acid to get good dye exhaustion. This process takes longer than the average disperse-dye method but is more practical for the heavy shades.

DYEING YARN

For cutomers who want Orlon sweater yarns dyed, Jeffries is equipped to make skeins from cones and to rewind the dyed yarn onto large cheeses that are ready for the knitting machines.

Jeffries uses cationic dyes of the Sevron type for Olon yarn. Pro-

CHECKING shade of dye takes place in a matching hood that provides six different combinations of light.

DRYING sweaters takes place at bank of tumbler dryers. Here girls lay out sweaters carefully to avoid wrinkling.

cedure for this class of dyes involves the use of a cationic retarder to control the rate of exhaust. Also dyes must be chosen that will exhaust as nearly as possible at the same rate.

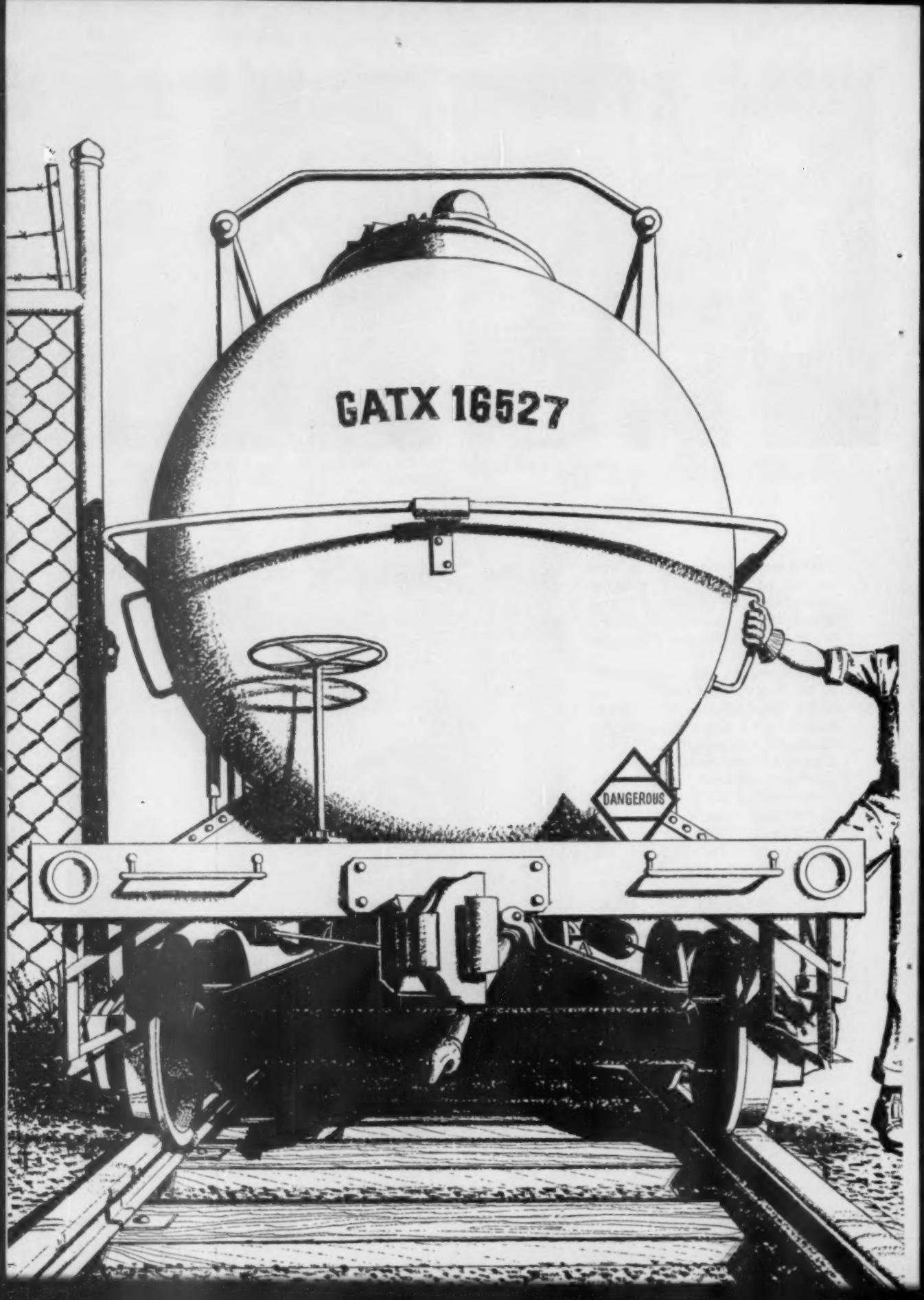
Jeffries starts the cationic dyes at 120 F. and brings the bath to the boil in 30 to 45 minutes, lets it run from 30 to 45 minutes according to the shade, and samples from small pom-poms that are suspended in the bath. Retarder concentration varies with the depth of shade that the company wants to obtain.

Light shades in which dye content is 0.1% of the weight of goods may require 8 to 10% of a retarder such as Du Pont Retarder LAN. But in medium to heavy shades where dye content is 3 to 5% owg., retarder can be cut to 1 to 2% owg. and still accomplish good results.

Some combinations benefit by reducing the bath temperature early in the dyeing because cationic dyes exhaust very slowly at temperature below 170 F. When temperature control is used, less retarder is needed to insure level dyeings of the goods.

Dyed yarns are extracted, dried, and rewound onto cones, and then wound again onto large cheeses suitable for mounting directly on knitting machines.

INSPECTING and careful bundling for shipping are the last steps in dyeing process. Here, in the photo above, the girls are inspecting and bundling the goods on a long table. The shipping platform in the rear is easily accessible to the bundling area.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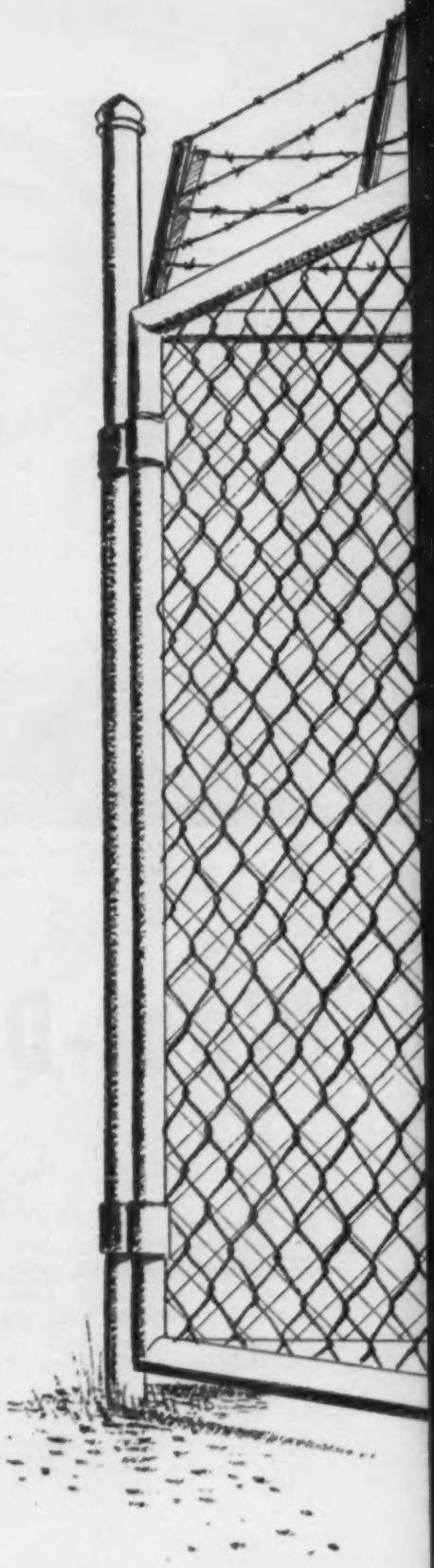
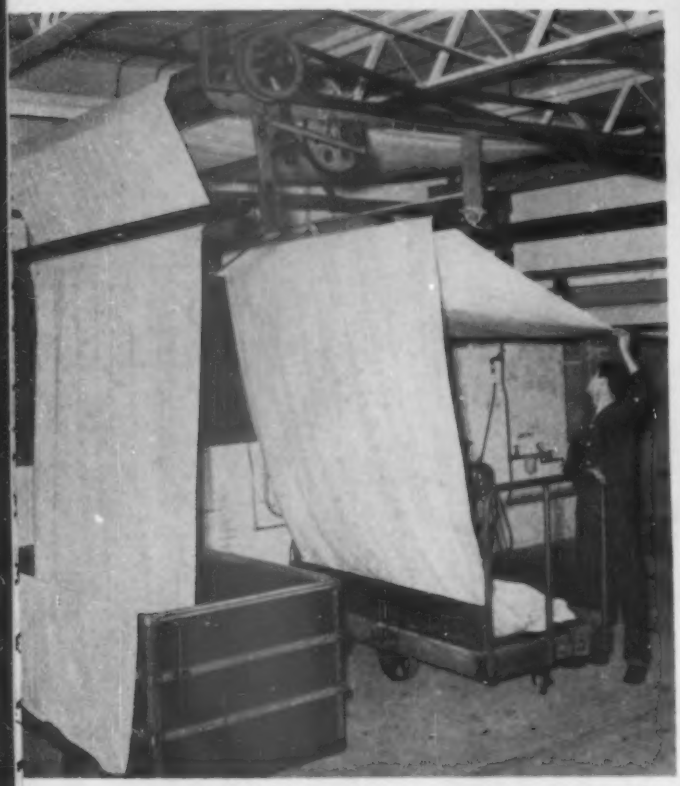
WYANDOTTE CHEMICALS

MICHIGAN ALKALI DIVISION

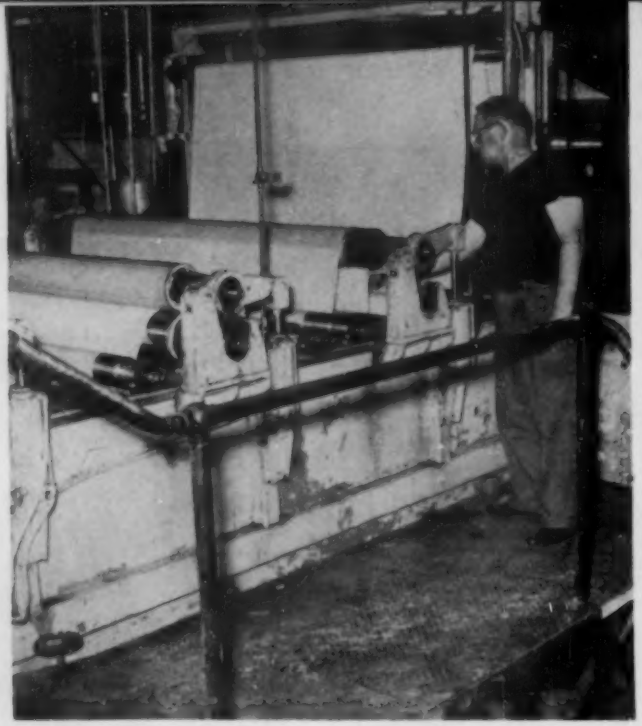
Pacing progress with creative chemistry



CIRCLE 85 ON READER SERVICE CARD



1. DRY CLEANING: Derby machine feeds and delivers at the same end, which keeps labor costs low on this operation.



2. CARBONIZING: This is the process that destroys any cellulosic material in the fabric. Goods get weak acid bath.

Wool-Dynel Processing

Here's a one-bath dyeing method for wool-Dynel fabrics that can cut dyeing time 50% and makes possible a wide range of fast colors suitable for men's and women's wear.

GET ENOUGH heads together, and you'll speed the solution of almost any problem. For instance, finishers of wool-Dynel blends had the problem of getting good washable union or cross-dyed shades on 70/30 blends of these fibers.

But because anionic dyes may serve for the wool, cationic dyes are often necessary for Dynel, and the two classes of dye normally don't work well in the same dyebath. So a two-bath, time-consuming routine is usually necessary to get satisfactory dyeings.

Take a case in point: A 70/30 wool-Dynel blend developed by

3. FULLING: Blends are fulled directly after dry-cleaning step. Detergent and soda ash mixture does this job. The fulling process: 90 minutes.

4. DYEING: Simplified one-bath method can be carried out in standard equipment at normal temperatures. Heavy shades must be scoured 15 minutes.

In 6 Quick, Easy Steps

J. P. Stevens & Co., Inc., and manufactured and finished at its Marland Plant, Andover, Mass.

The fabric is based on high-grade comber noils and short and medium-staple wool, plus a 30% Dynel content. Two principal men's-wear lines are a 6 to 6½-oz. fabric and a 9 to 9½-oz. fabric, both finishing 59 to 60 inches wide. A women's-wear line, designed for skirtings, will finish out at 9½ to 10 ounces. A good deal of the men's-wear numbers are going into blazers in solid colors.

The Dynel content is gaged to suit the wool content. That is, length and denier of Dynel are chosen to match the wool in fineness and staple.

A. E. Guidotti, who manages Marland, says: "We've found this blend of fibers works very well in all processing. Actually, the Dynel content improves the running characteristics of the yarn, and we've found we can cut down our twist factor to 70 or 80% of that usually needed for an all-wool yarn of the same general type."

Marland blends the fibers in the picker, and cards, spins, and weaves the blend just as an all-wool product would be handled.

DYEING SIMPLIFIED

Carbonizing and fulling of the wool-Dynel blend presents no problems, but dyeing costs for a two-bath method on a medium-priced line were stiff.

Work done by the Textile Fibers Department of Union Carbide Chemicals Co. and Geigy Chemical Corp. solved the over-all problem of dyeing the blends by a short one-bath method. This is the method Marland now uses to dye these goods.

The key to the one-bath method Marland uses is the combination of

a good leveling agent and an anti-precipitant that will keep the reaction products of the anionic and cationic dyes in a state of fine suspension.

A leveling agent that has proved to be satisfactory is Tinegal RWI (Geigy). This product insures level dyeings in the weakly acidic baths used for the neutral-dyeing wool dyestuffs.

The antiprecipitant that is used is Peregal TW (General Dyestuff Co.)

DYEING STEP BY STEP

Marland drycleans its woolens by the Derby process rather than by scouring them to remove dirt and wool oil. The solvent used is trichloroethylene, and the system includes filters, stills, and condensers that clean and recover the solvent continuously.

The next step is to tack the drycleaned goods and full them for about 90 minutes at 95 F. Fulling liquor is based on 4 ounces of detergent and 2 ounces of a mild alkali per gallon.

The goods are then detached and carbonized. In this process, the fabric is first wet out thoroughly in a heavy pad. Then it goes through a 4 tw. sulfuric acid and passes on to the dryer.

The heat in the dryer is zoned to provide areas heated to 190, 210, and 230 F. so that the goods are thoroughly dry before entering the high-temperature zone. The goods are tacked again after carbonizing and then are put in the dyebath.

The bath is set at 120 F., and 2% Tinegal RWI (Geigy), 2.0% Peregal TW (General), 6% of Cindye AC-9 (Cindet), and 1.5% Duponol G are added. The Cindye AC-9 functions as a carrier and exhausting agent for the cationic dyes, and should be pasted up with the Duponol G before going into the dyebath.

The bath is run for 10 minutes and the dissolved acid dyes are added. The bath is heated to 160 or 170 F. in 20 minutes. Then the cationic dyes are added. These dyes dissolve with a small amount of acetic acid.

Now the bath is brought to the boil. It runs for an hour, at which time the shade is checked. If adds are needed, dyers shut off the steam, and add the anionic and cationic dyes separately.

When the match is finally made, the load cools gradually by radiation until it drops down to 160 F. Then cool water can be used to flood the beck.

Heavy shades should be scoured after dyeing for 15 minutes with a nonionic detergent and 1 to 2% of acetic acid.

Often the neutral-dyeing premetalized colors will give a near union on wool-Dynel blend fabrics. Where such dyes are used, dyers add 3.0% of diammonium phosphate to the bath that has been set as previously described.

Slight shading to fill in a good union can be done with acid dyes for the wool or cationic dyes for the Dynel.

FINISHING STEPS

Dyers detack, hydroextract, and dry the goods on a multi-pass pin tenter with about 5% overfeed.

They regulate speed and temperature so that the Dynel is relustered in this operation. Dynel becomes delustered during the dyeing process and must be heated to 230 to 240 F. for a short while to regain its normal luster.

From the tenter, the wool-Dynel fabrics go to dry finishing, where they are sheared, decated, and pressed.

The decating operation may be done on the open semi-decater or in the closed full decater. End use and final hand determine the choice of methods. Generally, full decating produces a firmer hand.

Marland's management is enthusiastic about these wool-Dynel blends. The fabric has a number of volume applications, and the dyeing and finishing procedures produce a washable fabric of good dimensional stability that has considerable built-in crease resistance. A fall '60 promotion will further acquaint cutters and stylists with the good points of this fabric.

5. DRYING: This step assures well stabilized dimensions, relustering (in the case of wool-Dynel blends). Tenter has automatic weft straightener.

6. SHEARING: Final step in finishing wool-Dynel blends, unless product requires decating as a following step to modify the hand.

Cut dyehouse reruns and seconds up to 25% by using Morton Chemical Grade '999' Salt!

Records show when dyers switch from average purity salt to high purity Morton Chemical Grade '999', reruns and seconds drop from an average of 8.7% to an average of 5.5%. Colors are truer, reruns are fewer with Chemical Grade '999'. In fact, many dye manufacturers use Morton Chemical Grade '999' Salt in standardizing their dyes before they are sent to you!

With salt of average purity, calcium and magnesium compounds complex dyes and reduce their effectiveness. But with high purity Chemical Grade '999' Salt, you get the all sodium salt—99.95% pure sodium chloride with a trace of sodium sulphate—that is recommended whenever commercial calcium free salt is required.

Available in 100-lb. bags or bulk, Chemical Grade '999' is ideal for direct salting and brine. It leaves no accumulation of insolubles that necessitates costly brine system cleanouts.

Morton offers intermediate grades of salt, too. In addition to Chemical Grade '999', Morton produces several other grades of high-purity salt for textile use. As the only nationwide salt company, Morton can supply the kind of salt and service you require, regardless of your size, location, or type of operation.

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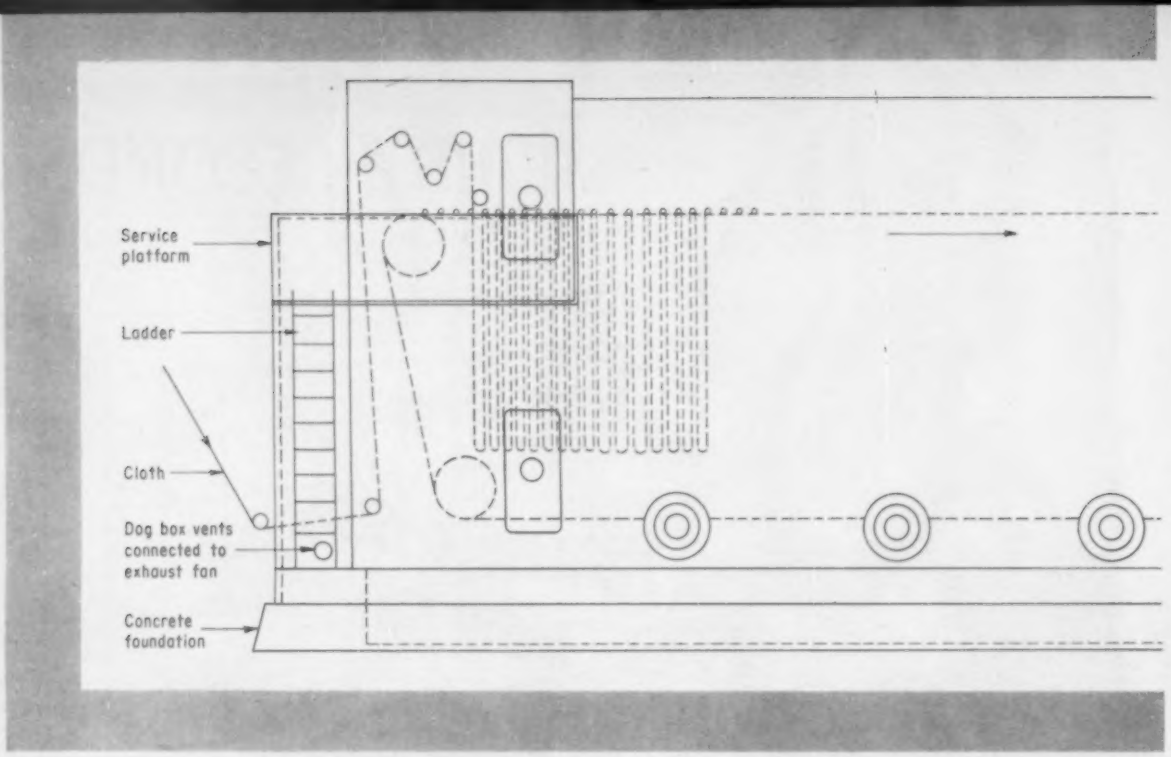


CHEMICAL TREATMENT & FINISHING

How Print Works

Part 1—Neutral-Steam Agers

Here are pointers on the construction and operation of neutral-steam agers that will help you to good color fixation, better all-around fastness, and best color yields. Coming next month: acid agers

HOW GOOD is your knowledge of neutral-steam agers? Chances are you're a bit rusty on the finer points. And perhaps you haven't had a chance to keep up to date on some of the newer developments.

That's why you'll find this refresher article on print-works agers of particular value, right now. Once you read it, you should be able to talk and plan for good color fixation, better all-around fastness, and best color yields. Suppose you start at the beginning:

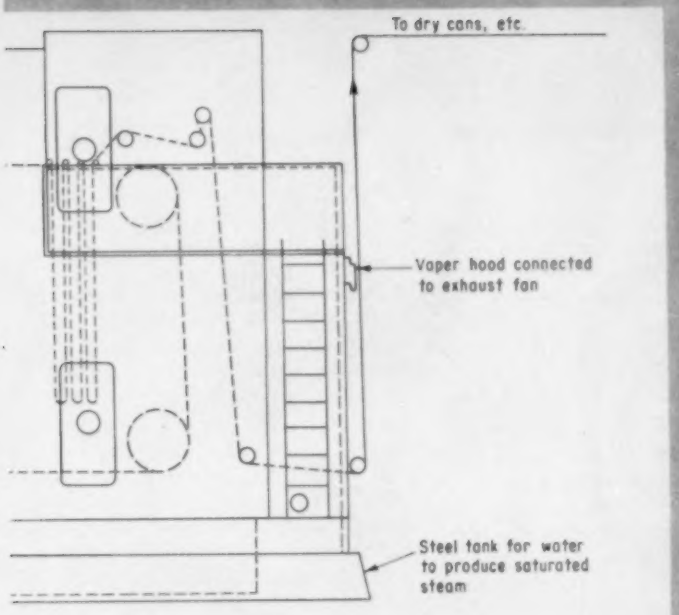
Vat dyes that are printed on cotton are aged or steamed in neutral steam by one of two major processes. The older process depends on saturated steam, through which the goods pass in an enclosed chamber. Goods to be steamed or aged in this way have dyestuff and reducing agent printed on together. In the newer process, called flash ageing, only the pigment and thickener are printed on the goods. The reducing material is applied in a pad just before the goods go into the flash ager, which operates on superheated steam.

FACTS ABOUT ROLLERS

The conventional vat ager has a row of rollers, top and bottom, over which the goods are led. The top rollers are generally driven and are about five feet above the bottom rollers.

Longer travel between rollers tends to accentuate the formation

By L. H. FERGUSON,
Superintendent of Printing,
Wade Mfg. Co., Wadesboro, N. C.



IN LOOP AGERS, this travel pattern of cloth is typical, as is construction of entering and delivery ends. These machines offer high speed, low labor and steam costs, and no mark-off problems. (Basic design courtesy of Proctor & Schwartz, Philadelphia.)

Agers Operate

of creases in the goods. Sateens that often have tight selvages tend to roll up in the ager even at the 5-ft. spacing.

The rollers themselves are 3 to 4 inches in diameter. In some agers, capacity nearly doubles with two sets of top and bottom rollers. Occasionally the lower set of rollers is driven.

The ceiling or roof of the ager is equipped with either steam chests or coils to prevent condensation and water spotting of the printed fabric.

Steam chests are usually operated on 7 to 8 psi. Coils will require 50 psi. Either way, it's important to control heat at the ceiling, because if it's too hot it will remove moisture from the wet steam in the ager before it has a chance to activate the reducing material in the print paste.

Too-dry ager conditions cut down color yield and cause color variation. Because moisture is essential to good vat aging, most agers are built so that the steam supply must pass through a water well before it rises in the ager.

Perforated steam pipes discharge steam downward into the water well and convert the water to the low-pressure saturated steam needed for good vat-dye reduction.

A baffle placed over the water well and under the bottom rollers of the ager prevents water from blowing up onto the goods.

. . . AND ABOUT BAFFLES

The baffles are 8 to 12 inches below the rollers and are built in several ways. One type has overlapping plates that let steam escape, but not water. Another type has two sheets of perforated metal set up so that the perforations are staggered. A third type is based on heavy chicken wire.

Experience has taught operators that in any case, baffles had best be covered with a couple of layers of burlap to prevent local condensation from being blown up on the goods. The burlap may be weighted with scrap iron placed around the ager.

Ager bearings are usually mounted outside the housing so that they stay free of moisture and are easy to service.

A stuffing box or other kind of seal is necessary at the point where the roller shaft leaves the housing to stop steam leakage. Walls and ceiling of the ager are well insulated to minimize condensation and conserve steam.

The point where the fabric enters the ager is called the throat. This area is well heated to avoid condensation. The aperture is no larger than necessary to permit entry of the goods.

Most agers have a double throat. The inside one is built into the front wall of the ager itself. The other throat is in the outside wall of a box that is built into the ager. Both throats have steam coils at top and bottom to cut down condensation.

The outside throat has an opening at one side that is connected to a stack. This stack leads excess steam away from the inside throat. Small troughs mounted above each throat lead off any condensate that may run down the ager wall or the throat box.

USING REAR STACKS

Agers usually have a rear stack also. It is used to lead off superheated steam that may collect near the ceiling of the ager. The rear stack has a damper so that the operator can control the withdrawal of steam by the rear stack. Too-fast exhausting of steam will draw air in at the throat.

It's important to keep air out of

the steamer because the vat colors will not reduce in the presence of air. Natural draft is preferred for these stacks, but a fan or steam-jet (induced) draft may be necessary in some instances.

Vat agers should be equipped with a recording thermometer. If only one is used, it should be placed midway between top and bottom rollers and the sides of the ager and about one-fourth of the way from the front or entering end and the delivery end of the ager. Thus in a 24-ft. ager, bulb should be about 6 feet from front end.

SAVING SPACE

A modern variation on top-and-bottom roller construction is the festoon ager, which is built like a loop dryer (diagram, pp. 90-91).

The printed face of the goods does not touch anything in this type of ager. Capacity per square foot of floor space is such that it may easily replace several of the older type of agers. Operating costs of festoon agers are about half that of roller types.

The so-called flash ager is still another type in wide use.

When the flash ager is used, the printing formulation is different. No reducing agents are added to the print paste. That's why prints can be applied and aged at the convenience of the plant. Also the less expensive hydro and caustic formulations can replace the sodium carbonate-sodium sulfoxylate mixture that is needed for the usual neutral-steam ager.

In the flash-ageing system, the printed goods are padded on the face with a mixture of caustic, hydro, and a thickener such as sodium alginate. They enter an atmosphere of superheated steam and move through the ager in about 30 seconds in a one-pass operation that eliminates any contact of the printed face with either the rolls or the guides.

Besides using cheaper reducing agents, the flash-aging system can reduce many vat dyes that were once reserved for dyeing only and that give better money value than some dyes especially dispersed for printing.

CRITICAL: HEAT, MOISTURE

Prints that you want to age in neutral steam by whatever method must be exposed to the right combination of heat and moisture or you'll get indifferent results.

In the conventional ager, the goods should spend 5 to 7 minutes in an atmosphere of low-pressure saturated steam, free of air, and at a temperature of 212 to 220 F. Under these conditions the reducing agents in the printing paste will convert the insoluble vat pigment to the leuco form, which leaves the binder and is absorbed by the fiber. A great deal of moisture is needed to bring about this physical and chemical change.

One aid to getting moisture to the point of the reactions is the addition of humectants, such as glycerine or sorbitol, to the print paste. Humectants pick up moisture from the steam very quickly. But to keep the steam moist you have to watch ager temperature, which is affected by several factors. Among these are hot, over-dry cloth right off the dry cans, the chemical reaction in the reduction of vat dyes to the leuco form, and absorption of water by the humectant.

You have some leeway in insuring adequate moisture in the ageing operation. You can cool hot cloth by skying from one box to another—sometimes in a conditioned room to permit as much moisture pickup as possible. Cold-water sprays applied as a mist or fog to the underside of the goods as they enter the ager also are satisfactory. In some plants, saturated steam is directed through a slot at the unprinted side of the fabric to provide extra moisture. The supply of steam to the water well can be increased if ager temperatures tend to rise above 220 F.

ADDING FLEXIBILITY

Another way of controlling temperature is to cool the rollers over which the cloth passes by blowing air through them at a temperature of 202 to 220 F. The heat of reaction is thus quickly removed by contact with the cooler rolls.

Extra moisture is sometimes added by trickling cold water down the side of a fine-mesh wire box that is hung between the folds of cloth in a roller ager. The superheat in the confined area evaporates the water, and this vapor supplies the right moisture.

Desuperheaters are used in some agers. These devices come in the form of an hour glass. The top of the desuperheater is connected to the side of the ager just above the top rollers. The bottom section is brought into the ager below the bottom rolls. An exhaust fan pulls superheated steam from the top of the ager down to the narrow waist of the desuperheater, into which cold water is sprayed. The dry steam picks up water and is returned to the ager below the bottom rollers.

In spite of good controls and all the aids to adequate moisture and air-free steam, vat ageing still requires close attention and good supervision.

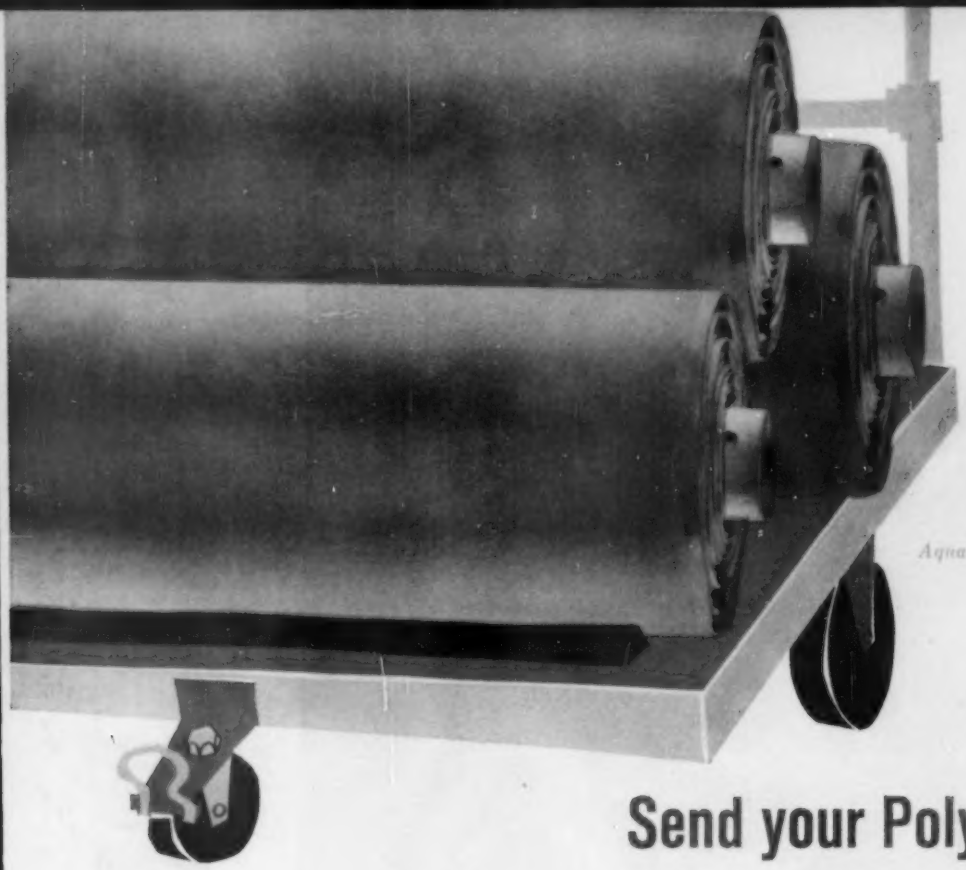
USING COTTAGE STEAMERS

The so-called cottage steamer is an autoclave in which printed goods may be exposed to steam for the longer periods of time required to develop dyes such as basic colors or disperse types.

The fabric usually runs into the cottage steamer on a dolly. The goods are hanked loosely to permit thorough penetration of steam. In most cases the hanks of fabric are wound up with paper so that each layer of fabric is separated to avoid any chance of mark-off.

Cottage steaming is done with saturated steam. Under low pressure of 5 to 20 psi., the average steaming time is one hour.

This process is intermittent and not suitable for high-production plants. For smaller plants, on the other hand, it offers the advantages of being more foolproof than the continuous systems. Also it permits a variable dwell period that is useful in developing the full color value of disperse dyes printed on man-made-fiber fabrics. As with other agers, you have to run a cottage steamer with care to avoid water spotting, and you have to saturate the steam supply to insure good development of the dyes.



Send your Polyester Fabrics to market protected by the Outstanding Fastness of Eastman Polyester Dyes

Your Eastman representative will be glad to tell you about the performance advantages and economy of these dyes

Light shades, dark shades—as the demand for fabrics containing polyester fibers continues to grow, dyers are being called upon to deliver more shades, brighter shades, faster shades.

In step with this trend, Eastman offers an expanding series of polyester dyes, providing the best all 'round fastness characteristics of polyester dyes currently available.

Specifically developed for use with polyester fibers, these dyes exhibit outstanding fastness to washing, light, sublimation, crocking, perspiration, dry cleaning and wet pressing.

Equally important are their excellent processing characteristics...good build-up, good exhaustion and outstanding leveling properties.

Dyeing with Eastman Polyester Dyes is easily accomplished with carriers or under pressure at elevated temperatures. Fibers can be readily dyed as tow, tops, stock, or fabric. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose or wool can be easily dyed in dye-becks.

Get the full story of this outstanding line of dyes for polyester fabrics from your Eastman representative. Formulations and technical assistance on dyeing procedures are readily available.

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by **EASTMAN CHEMICAL PRODUCTS, INC.**, subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Ladi, New Jersey; and Greensboro, North Carolina. On the **West Coast** through WILSON & GEO. MEYER & COMPANY, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In **Canada** through CLOUGH DYESTUFF CO., LTD., St. Laurent, P. Q.

* Try this formula on your next lot of aqua.

0.15% Eastman Polyester Yellow W
0.2% Eastman Polyester Blue GLF
3 g./l. o-phenyl phenol type carrier
Material: Polyester
Bath Ratio: 30:1
Dyed 1 hour at boil

Polyester Yellow 5GLS
Polyester Yellow RL
Polyester Yellow W
Polyester Yellow 5R
Polyester Red B
Polyester Red 2G
Polyester Dark Red FL
Polyester Pink RL
Polyester Pink LB
Polyester Brilliant Orange 2RL
Polyester Blue GLF
Polyester Blue GR
Polyester Brilliant Blue 2RL
Polyester Blue 3RL
Polyester Blue BLF
Polyester Blue GB
Polyester Navy G
Polyester Violet R
Polyester Brown 3RL
Polyester Black RB
Polyester Diazo Black B

Down
with
finishing
costs—
safely!

"AC" catalysts help you achieve finer results at lower cost—through longer resin bath life, faster more complete curing of thermosetting resins, with minimum resin add-on. And Monsanto AC Catalysts are compatible with practically all finishing agents. Write for complete technical data, and expert finishing counsel, to Monsanto Chemical Company, Plastics Division, Room 746, Springfield 2, Mass.

Monsanto

MONSANTO DEVELOPER IN **PLASTICS**

Other Monsanto textile chemicals: Resloom® E-63 chlorine resistant resin; Resloom E-50 cyclic urea resin; Resloom HP and M-75 melamine resins; Stymer® sizes; Lytron® polystyrene latices

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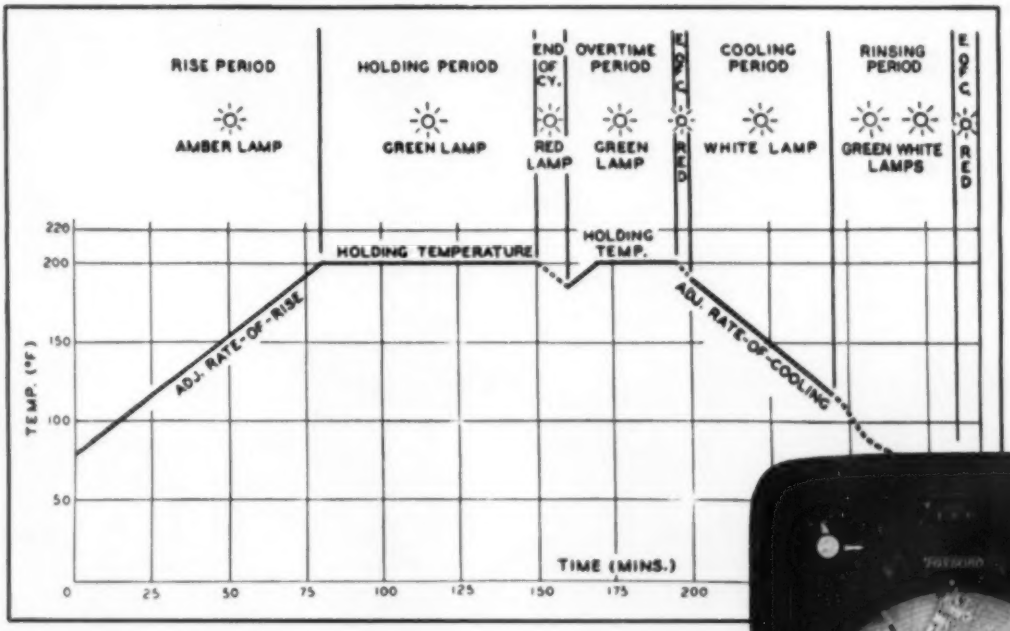
now!
RINSE AUTOMATICALLY, TOO...



new CycleLog* feature adds automatic rinse to Dye Bath control

In addition to controlled rate-of-rise; controlled holding; controlled cooling—Foxboro CycleLog Controllers now have a new operating exclusive—automatic rinse control for the dye bath kettle.

Here's how it works. The operator sets the CycleLog timer, for the desired rinsing time, when he starts the cooling cycle. The CycleLog does the rest: at the end of controlled cooling, rinsing starts *automatically*—a rinse signal is given, the rinse valve opens to flush away spent dyestuffs and chemicals. Valve closes and end-of-cycle light signals when timer runs out.

It's simple—it's automatic. And you can specify it on any new Foxboro CycleLog Controller, or have your existing CycleLogs modified to include it. For full details on automatic rinse control, and a variety of other CycleLog dye bath control functions, write **The Foxboro Company, 8410 Neponset Ave., Foxboro, Mass.**

*Reg. U.S. Pat. Off.

CycleLog instruments for Dye Bath Control

Model 40 C-H
controlled heating-holding
Model 40 C-HC
controlled heating-holding-cooling
Model 40 C-HR
controlled heating-holding-rinsing
Model 40 C-HCR
controlled heating-holding-cooling-rinsing

FOXBORO CYCLELOG CONTROLLERS
REG. U.S. PAT. OFF.

Complete Freedom of Styling

with the full range of HOECHST DYESTUFFS

REMAZOL
Vinyl sulfon fiber reactive dyes

NAPHTOL
Exclusive specialty and conventional Naphtols and fast color salts and bases

HOSTAGEN
Stabilized azoics for printing

HOSTAVAT
Broad range of special and common vat dyes for printing and dyeing

ANTHRASOL and INDIGOSOL
Complete line of leuco vat esters

REMALAN FAST DYES
1:2 metal complex dyes for wool, nylon and some other man-made fibers

REMASTRAL DYES
Fast to light direct dyestuffs

HOSTAFIL, HOSTATONE
Water and oil phase pigments for printing cotton and rayon

CHROME DYES
Specialty chrome colors for printing cotton and rayon

Also direct, acid, metallized acid, basic and SPECIALTIES FOR OTHER COLOR CONSUMING INDUSTRIES

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CHARLOTTE • LOS ANGELES • PHILADELPHIA • WEST WARWICK, R. I.

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

Let these antistatic lubricants

GIVE YOU FIRM CONTROL OVER *ALL* SYNTHETIC FIBERS

Working with any synthetic fiber, it is necessary to alter the draw characteristics to achieve balanced processing. The Nopcostat® Series of lubricants—products of Nopco® research—offers excellent formulations for cellulose, polyester and acrylic fibers; also for wool fibers and yarns and yarns processed on woolen and worsted systems.

These are potent formulations, achieving desired results with amounts of from ¼ to 1% owf.

Check the table for the formulation that best meets your needs. Then, for complete information, write Nopco Chemical Company, Textile Division, 60 Park Place, Newark 2, N.J.

Characteristics	Nopcostat AS-40	Nopcostat LV-40	Nopcostat 2152-P	Nopcostat 2152-X
Interfiber friction	Low	Medium	High	High
Fiber-to-metal friction	Medium	Medium	Low	Low
Antistatic effect	Excellent	Excellent	Excellent	Excellent

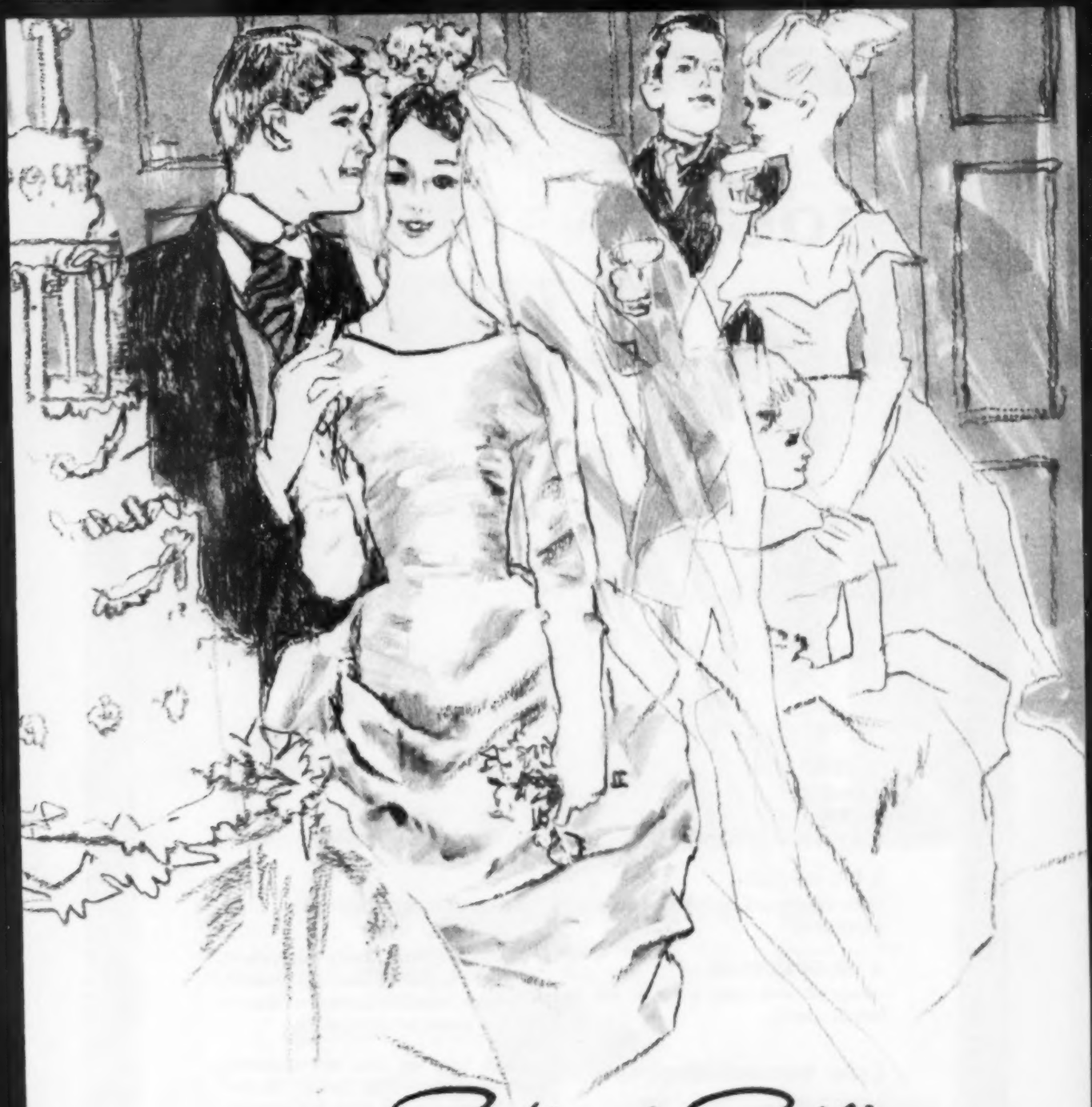
NOPCO
CHEMICAL COMPANY

60 Park Place, Newark 2, N.J.

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. • London, Canada • Boston, Mass. • Chicago, Ill.

98 CIRCLE 98 ON READER SERVICE CARD

CIRCLE 99 ON READER SERVICE CARD



Satins to Suitings...

CELANESE PVAc EMULSIONS MEET EVERY FINISHING NEED

Versatile Celanese PVAc emulsions have a range of useful properties to satisfy every finishing requirement • Appropriate formulations can increase durability of woven fabrics varying in weight from percale to heavy twill. Tensile strength and wrinkle-recovery can be improved . . . handle modified for greater stiffness • An informative Bulletin NP 28, "Textile Finishing With Celanese Acetate Emulsions", contains helpful data on properties, applications, formulations and processing procedures for many fabrics. Please write for a free copy • Celanese Chemical Company, 180 Madison Avenue, New York 16.

Celanese®

Celanese CHEMICALS

Celanese Chemical Company is a Division of Celanese Corporation of America.
Canadian Affiliate: Canadian Chemical Company Limited, Montreal, Toronto, Vancouver
Export Sales: Amcel Co., Inc., and Pan Amcel Co., Inc., 180 Madison Avenue, New York 16.

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GOOD INSURANCE

Clean and Rustproof Textile Equipment
The Absolutely Safe Way . . .

USE

IMMUNOL

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Non-Flammable • Non-Toxic • Odorless Solvent

Safety Clauses . . .

1. IMMUNOL ELIMINATES THE FIRE HAZARD—
is useable anywhere with absolute safety. Recommended by safety engineers, and insurance companies.

2. IT IS NON-TOXIC—
toxic vapors and risk of dermatitis are eliminated.

3. SAFE FOR ALL TEXTILES—
rinses off with plain water or can be left in—safely.

Other Immunol Benefits . . .

1. ECONOMICAL—
dilutes 1 to 20 in any water, costs less than 13c a gallon of cleaning solution.

2. PREVENTS RUST AND CORROSION—
saves equipment, eliminates use of costly oils and rust preventives.

3. ODORLESS—
increases operator efficiency and eliminates complaints.

4. GIVES OUTSTANDING CLEANING AND SOLVENT ACTION
Cleans anything, fast—equipment, woodwork, plastic, glass and enameled surfaces. IMMUNOL washes off quickly and leaves no oily residue.

Check now on this safety-insuring, money-saving IMMUNOL "policy". Write, wire or call for a free sample of IMMUNOL and for the IMMUNOL Textile Bulletin.

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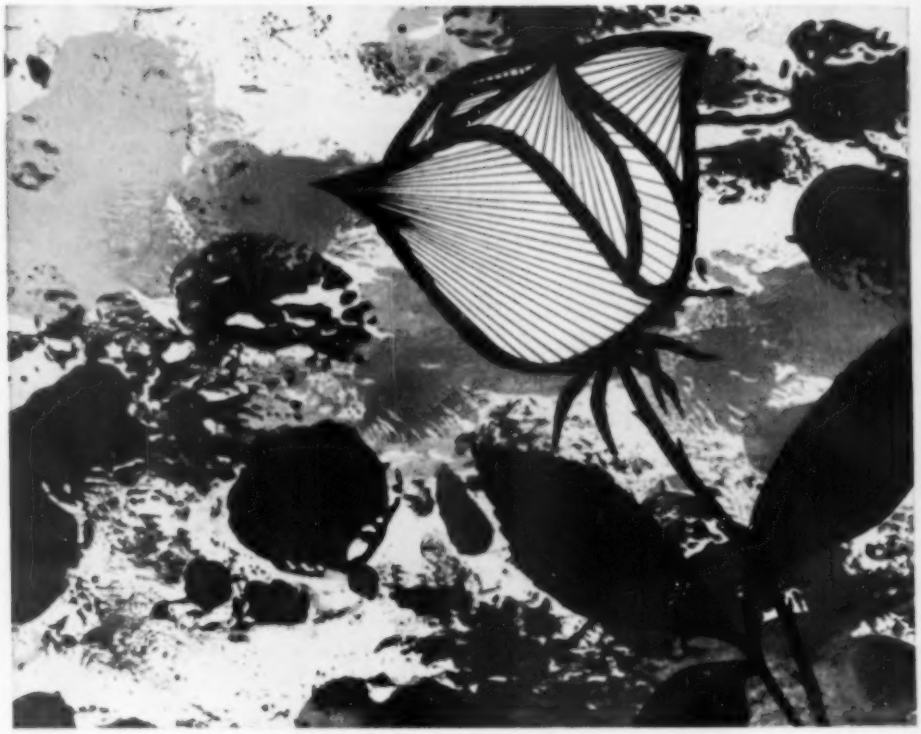
PUTNAM PRODUCTS FOR THE TEXTILE INDUSTRY



I/858

Basacryl® Dyestuffs

Exceptionally brilliant shades on acrylic fibers are obtained with this new class of cationic dyestuffs in both dyeing and printing.

- Outstanding fastness properties.
- Short dyeing cycle, with good build-up.
- No pH sensitivity when dyed on acid side.
- Negligible staining of other fibers in dyeing blends.
- Affinity for fiber — no blocking.
- All Basacryls have same rate of exhaustion and same affinity for fiber — no blocking.

Call us for further technical information and assistance.

BASF knows how

In Canada contact:
Consolidated Dyestuffs & Chemicals Ltd.
395 Beaumont Avenue
Montreal 15, Quebec

PUTNAM CHEMICAL CORPORATION
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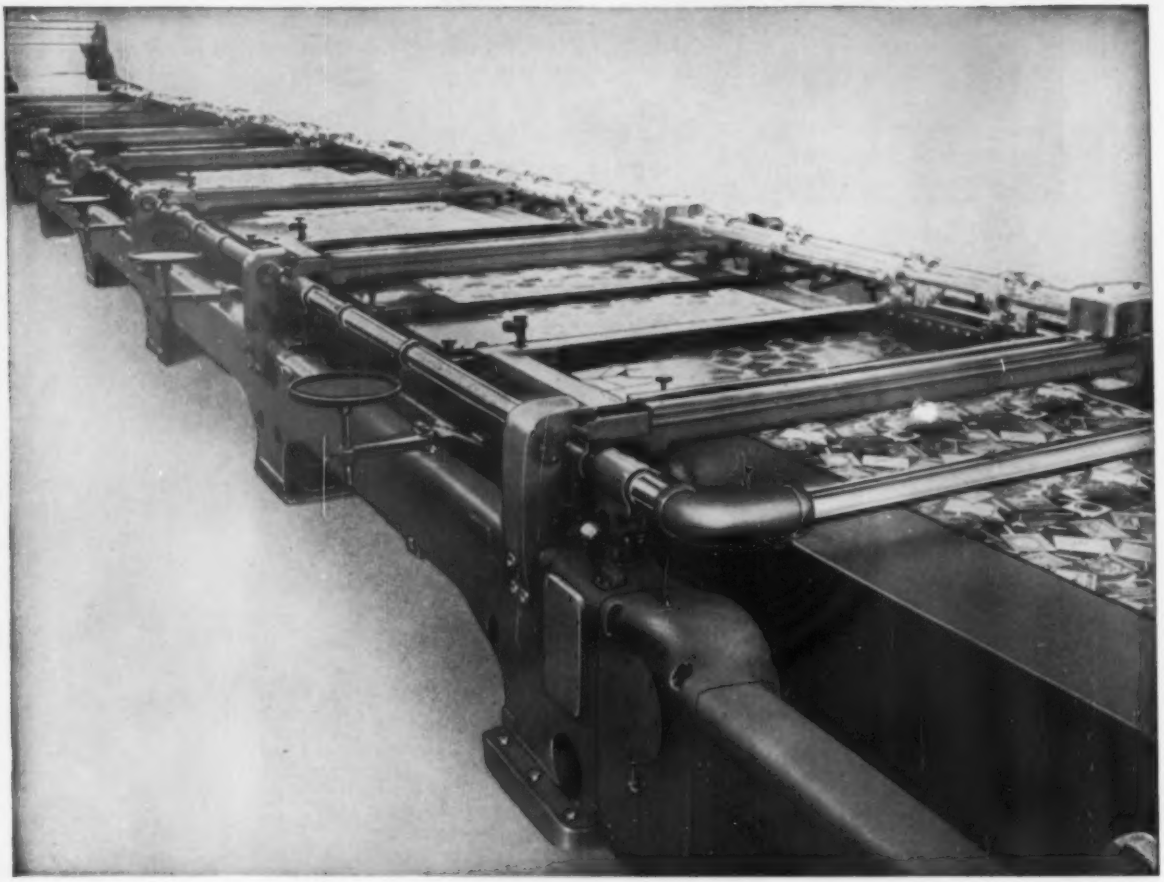

Screen Print up to 12 yds. of Fabric Per Minute with an **ICHINOSE-TYPE** Patented MULTI-COLOR AUTOMATIC SCREEN PRINTING MACHINE

The Ichinose Screen Printing Machine, with more than 60 patented features, screen prints all kinds of fabric perfectly in up to 21 colors at nearly double the speed of other machines on the market. Finished prints are of highest quality, clean, sharp, accurate and far superior to hand or roller prints.

Ichinose means greater economy, too, both in initial cost and in operation and maintenance. It consumes less power, steam, and dye paste, while cutting labor costs to only two operators per machine. Change of design and colors takes less than 30 minutes.

Machines with various different repeats up to 72" and fabric widths up to 60" can be supplied.

To ensure complete satisfaction, all Ichinose machines are installed by our own technicians anywhere in the world. Write today to Dept. TW8 for illustrated catalogue and printed fabric samples.

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P. O. Box 367, Osaka Central

OSAKA, JAPAN

(Cable: Autoscreen Amagasaki)

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MICROROK

Ask the man from S-W . . .

. . . about the excellent wear-resistance qualities of **MICROROK** covers. Heat resistance this cover offers, too, up to 180°F. Padder, Mangle, Washer, and Carbonizer Rolls give long service life when their covers are **MICROROK.**

Literally hundreds of **MICROROK** Rolls are proving daily that they are the most versatile hard rolls in use today. This and other factors mean cover longevity which you may not be getting. Ask your S-W man for the facts.

HAVE YOU LOOKED INTO THE

- **Uniform Extraction**
- **Uniform Penetration**
- **Long Life — measured in years**

MICROROK® combines the best properties of metal rolls with the best properties of rubber rolls. It combines hardness and smooth finish with the resiliency of rubber. It gives outstanding life between grinds, thus reduces your maintenance costs. Microscopic depressions in the surface, which looks mirror-like, aid in gripping fabric and preventing slippage.

For the MICROROK catalog page containing complete technical information, see your S-W Sales Engineer.

STOWE-WOODWARD, INC.

STOWE-WOODWARD, INC.
Newton Upper Falls, Mass.
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on the West Coast

HUNTINGTON RUBBER MILLS, INC.
Seattle, Washington
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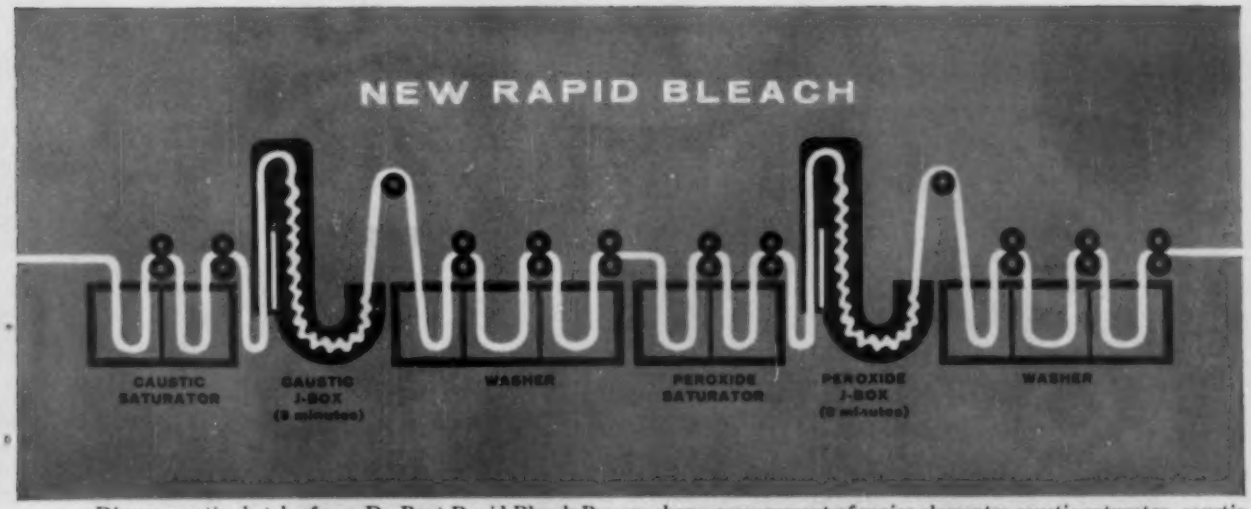
Port Coquitlam, British Columbia, Canada

CIRCLE 103 ON READER SERVICE CARD 103

Du Pont's New Rapid Bleach Process Cuts Bleaching Costs... Improves Dyeing Quality

DU PONT
REG. U. S. PAT. OFF.

ALBONE® hydrogen peroxide | BOLOZONE® sodium peroxide | PERDOX® sodium



Diagrammatic sketch of new Du Pont Rapid Bleach Process shows arrangement of major elements: caustic saturator, caustic J-box, washer, peroxide saturator, peroxide J-box and final washer. Operation saves time, cuts operating costs. It can be used for medium-weight cotton fabrics and is especially suitable for hard-to-handle heavyweight fabrics that are susceptible to bruising.

Production-scale operations prove the superiority of the Du Pont Rapid Bleach Process over conventional methods for preparing heavy cotton fabrics for dyeing and finishing . . . at a lower cost.

The new Du Pont Process (shown above) prepares fabrics for finishing with high absorbency and exceptionally good dye receptivity. You obtain high color values and much greater clarity from the dye colors used. And you do it faster and easier.

Du Pont Rapid Bleach is a continuous process . . . specifically designed for medium to heavyweight fabrics. It's unique, simple and fast. Has caustic pre-treatment in the first J-box. The new two-stage process reduces cloth storage time to as little as 8 minutes in each J-box. Makes substantial savings possible over batch methods.

This new method introduces an open-width, continuous process designed for the preparation of sensitive fabrics (such as twills, drills, poplins, etc.) for dyeing. It reduces seconds and rejects due to bruises, rub marks and creases and can be readily adapted to any continuous, or semi-continuous, open-width system.

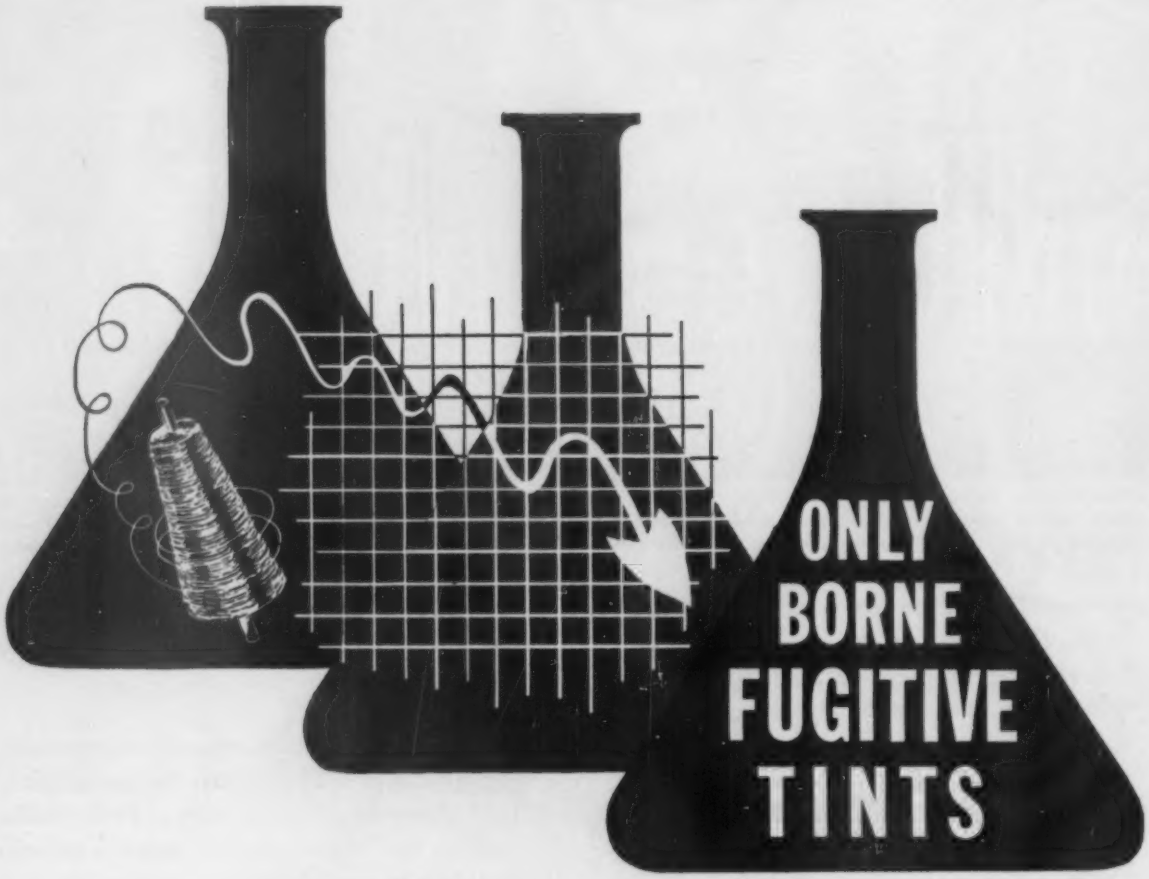
If you'd like more information on new Rapid Bleach, call your Du Pont Representative. He's a specialist in textile bleaching and will be glad to show you how this new process may profitably fit into your mill.

DU PONT BLEACHING PRODUCTS

assure you of the best bleaching results every time. They help speed bleaching operations more economically. They're thoroughly tested and proved out in successful mill operation. All are readily available from convenient shipping points to assure prompt delivery. Du Pont, Electrochemicals Department, Peroxygen Products Division, Wilmington 98, Delaware.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

borate perhydrate **OXONE®** monopersulfate compound **SODIUM PERBORATE**



are POWER-MATCHED

To Provide Predictable Cost Control

MINOTINT – Highest power-matched tinctorial strength available.

SOLUTINT – Widest selection of POWER-MATCHED colors.

PETROTINT–A new line of oil-soluble fugitive tints.

TINTINOL – The first prepared solution tints, originated by Borne.

SYNTINT – Pigment dispersions for heat-conditioned nylon and wool.

POWER-MATCHED TINCTORIAL STRENGTH is the outstanding property of Borne's **MINOTINT, SOLUTINT** and **PETROTINT** series. One ounce of any selected color will produce the same relative sighting intensity as one ounce of any other color in the same series. Hence the term **"POWER-MATCHED."**

DESIGNED FOR MAXIMUM FUGITIVITY on all fibers with normal scouring, **BORNE** Fugitive Tints are color concentrates compounded in a fiber-conditioning formula that combines lubricant, surfactant, humectant, and antistatic components.

DRAMATIC COST SAVINGS based on mill cost per pound of fiber tinted–not on cost per pound of tint–are possible through selective application of Borne colors. The Borne Tint Test Method will prove this for you. It is a simple, direct method for comparing tint strengths and calculating mill costs.

WRITE TODAY for our unique **TEST KIT** and more information –complete in the Borne Fugitive Tint Brochure.

BORNE CHEMICAL COMPANY, INC.

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PART OF THE PACKAGE

Technical help like this with your SOLVAY textile chemicals!

The bleaching process these technicians are discussing is a dramatic example of how Solvay researches its chemicals *specifically* to help textile men. As Solvay textile specialists, they are part of a continuing study of hydrogen peroxide's basic role in bleaching. From this work, Solvay developed a revolutionary new and original method* that actually reduces cotton bleaching chemical costs *up to 50%*—yet improves whiteness and other important qualities of the cloth.

*Solvay® Activated Hydrogen Peroxide Bleaching Process (U. S. Patent 2903327) —available on a non-exclusive contract and on a royalty-free basis

Consider these advantages of placing your chemical business with Solvay:

- Textile-trained representatives available to call on you to **discuss** your problems.
- Textile-trained technical men with the most modern laboratory equipment, available to **work** on your problems.
- Textile-experienced—for almost 80 years.

SOLVAY CHEMICALS FOR TEXTILES
Caustic Soda • Chlorine • Hydrogen Peroxide
Sodium Nitrite • Mutual® Chromium Chemicals
Potassium Carbonate • Soda Ash

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SOLVAY branch offices and dealers are located in major centers from coast to coast. Send export inquiries to Allied Chemical International, 40 Rector St., N. Y. 6.

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Allied Chemical Corporation
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Please send without cost:

☐ Brochure on Solvay Activated Hydrogen Peroxide Process.

☐ Call to discuss technical problem outlined in attached letter.

Name_____

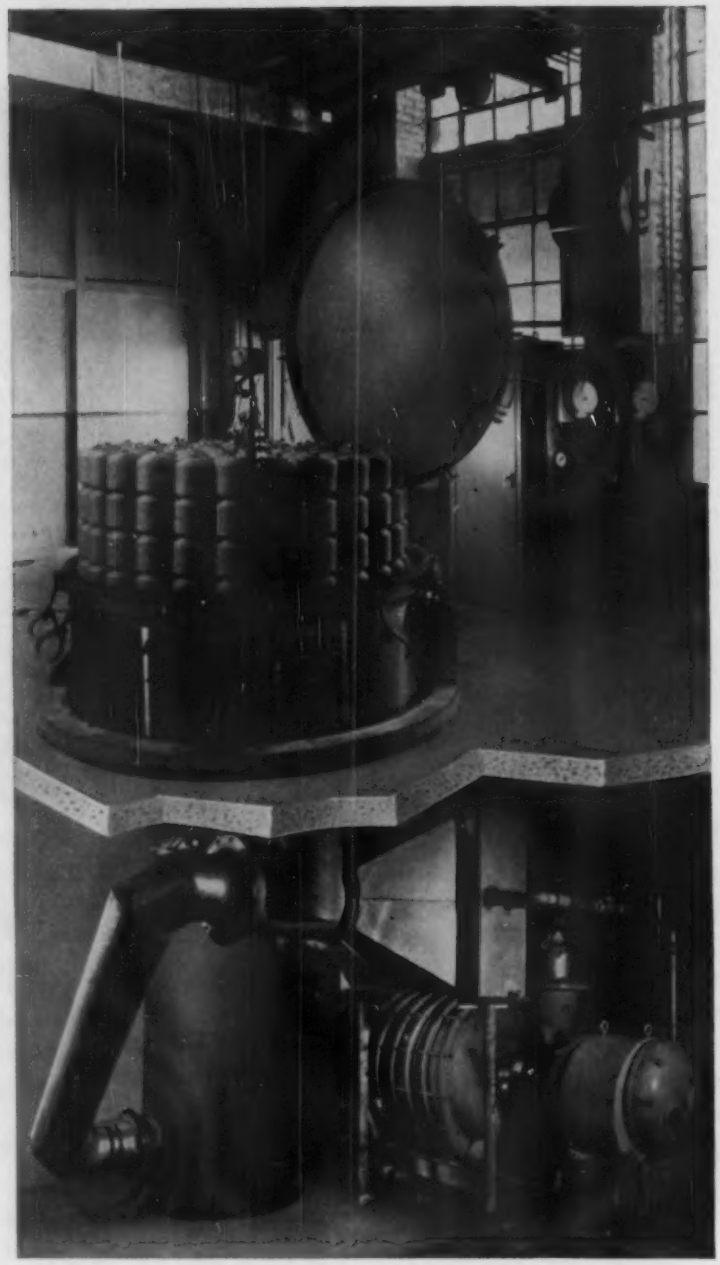
Position_____

Company_____

Phone_____

Address_____

City_____ Zone____ State_____



Spinner's Processing Co. Achieves New Economies in Packaged Yarn Drying

At Spinner's Processing Co., Spindale, N. C., Turbo's new recirculating-type Extractor-Dryer for packaged yarns is producing these results:

Shorter Cycles . . . With the new Turbo machine, extracting-drying time for mercerized yarn is 35 to 40 minutes. This compares with Spinner's previous experience of 45 minutes in a conventional extractor, *plus* 3 to 4 hours in a port dryer.

Improved Yarn Quality . . . Spinner's Processing Co. reports that yarn processed in the Turbo Extractor-Dryer is softer, more uniform . . . runs better in knitting. Conditioned air recirculated in the machine prevents over-drying.

Reduced Handling . . . One operation instead of two.

Less Space . . . With the Turbo Extractor-Dryer, basement installation (illustrated) fits a space only 11 x 11 feet square. Uses ⅓ the space of conventional equipment.

A new Turbo Extractor-Dryer, engineered to meet your requirements, can produce similar results for you. Bulletin on request.

TURBO

TURBO MACHINE COMPANY, LANSDALE, PA., U.S.A.

VINOL

polyvinyl alcohol

SOON ON THE WAY TO MILLS

Airco VINOL Polyvinyl Alcohol in grades designed for use as warp sizes, thermosetting resin modifiers, finishes, binders for nonwovens and ribbon.

Available soon, Airco VINOL—a group of polyvinyl alcohol resins tailored for specific uses—has unusual versatility . . . is moderately priced. In many textile applications, it warrants comparison with starch, casein, latex and other synthetic resins. Whether you are using polyvinyl alcohol or a competitive material, Airco VINOL offers you advantages in sizes, finishes, and binders.

VINOL polyvinyl alcohol resins provide a wide range of characteristics such as water solubility, water resistance; adhesion to porous or non-porous surfaces; toughness, flexibility. Other key properties are resistance to grease, solvents, rotting and tearing.

VINOL grades represent a range of properties, reflecting differences in degree of hydrolysis and polymerization. However, all dissolve easily in water and form colorless solutions; all have little tendency to dust. Airco's exclusive continuous manufacturing process turns out resins of consistently high quality, free from variations typical of batch processing.

To receive the latest information about VINOL polyvinyl alcohol resins, let us put your name on our mailing list. We'll be glad to send you samples and technical bulletins as they become available.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND . . .

AIRCO

AIR REDUCTION CHEMICAL COMPANY

A division of Air Reduction Company, Incorporated
150 East 42nd Street, New York 17, N. Y.
Represented Internationally by Airco Company International

CIRCLE 109 ON READER SERVICE CARD

POWELL VALVES

CORROSION RESISTANT

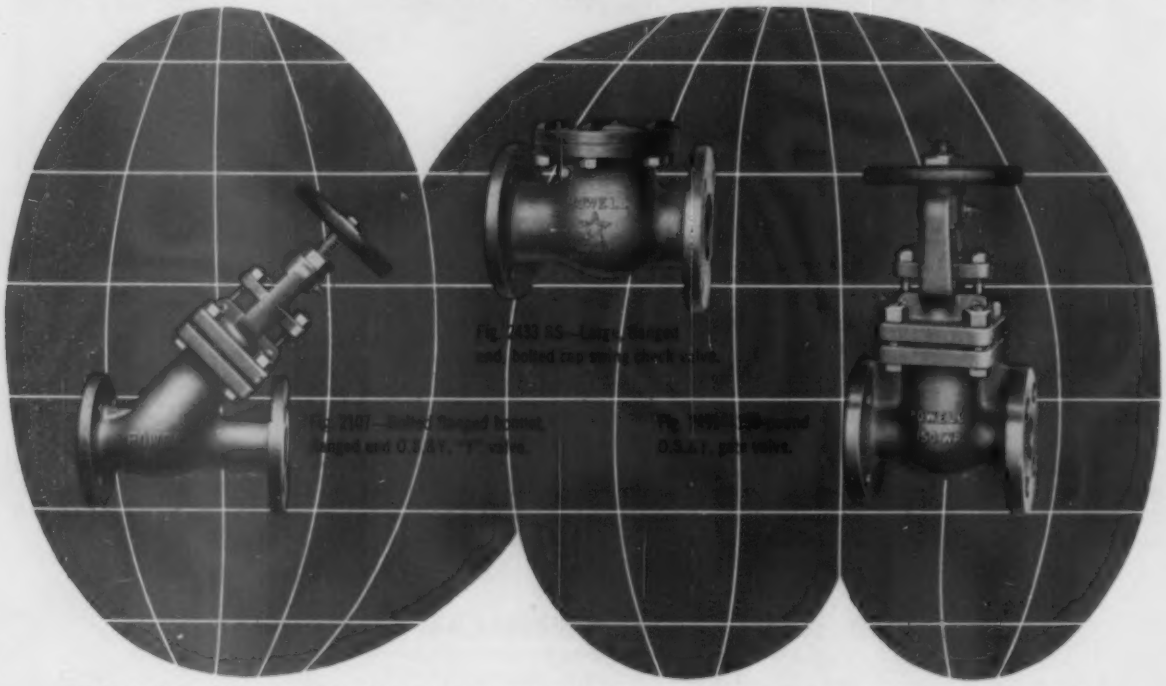
performance that makes a world of difference

The Powell Special Design and Alloy Valve Division was created to study and solve the flow control problems arising from the increasing number of corrosive fluids used in the Chemical and Process industries.

As a result, Powell has developed valves that can be depended upon for long, uninterrupted service under the most corrosive conditions; valves that require little maintenance; and that eliminate the possibility of contamination of end product.

Powell offers valves to handle practically every corrosive fluid—valves of every design and in the largest selection of metals and alloys. Contact your local Powell distributor. Or write or call us direct. Our consulting engineers are at your service.

Powell . . . world's largest family of valves



THE WM. POWELL COMPANY • DEPENDABLE VALVES SINCE 1846 • CINCINNATI 22, OHIO

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CIRCLE 111 ON READER SERVICE CARD→

For the right textile lubricant–or processing chemical ... choose from over 100 CARBIDE products!

Whether you need UCON textile lubricants ... anti-foaming agents for scouring and mercerizing ... water-insoluble solvents to achieve deeper and fuller shades in dyeing...monomers for fiber synthesis... ethanolamines and TERGITOL nonionic surfactants for detergents ... as well as a variety of chemicals for finishing agents and lubricants ... you'll find them at CARBIDE. From more than one hundred CARBIDE chemicals, you can select the products that best meet your textile processing needs.

Where production problems are particularly vexing, a CARBIDE Technical Representative is always available to help you in the proper use of these chemicals. For behind his own training and practical experience are many specialists in research, production, shipping, sales, new product development, and technical service.

CARBIDE chemicals are available in 55-gallon drums in carload or LCL lots, in tank cars, tank wagons, compartment tank cars, and compartment tank wagons. And, when you buy from CARBIDE, you're assured of quick delivery from warehouses, plants, and bulk stations located across the country. Talk to your CARBIDE Technical Representative about these services. Or, write Department HT, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y,

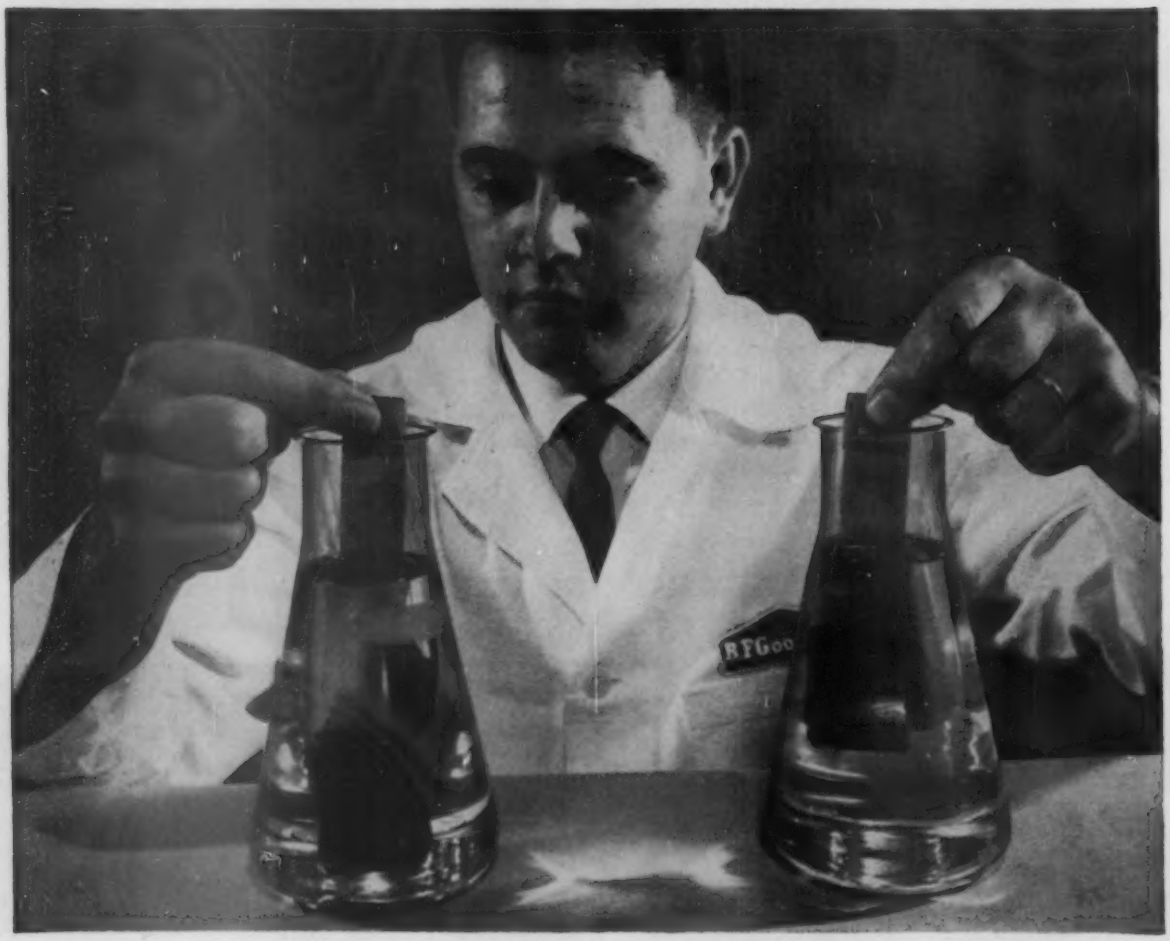
UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

Tergitol, Ucon, and Union Carbide are registered trade-marks.

Another new development using

B.F.Goodrich Chemical *raw materials*



Even cleaning solvents can't affect new binder

This new self-curing Hycar acrylic binder eliminates the need for involved compounding to develop solvent resistance and washability. Its excellent behavior is demonstrated above.

The weighted nonwoven at left is made with conventional binder. When immersed in dry cleaning solvent, it failed immediately. The weighted nonwoven at right is made with the new Hycar binder. Immersed in the same solvent for a week, the construction was unchanged.

In addition, the new latex reduces processing costs, increases stability and is colorless.

Complete information about application of new Hycar 2671 is available now. You can learn more about improving nonwovens, upholstery or drapery back coatings, and adhesives with it. It's another example of service you can get to produce better textiles for wider appeal. Write Dept. KB-5, B.F. Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

PRODUCTS FOR TEXTILE IMPROVEMENT

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich

GEON vinyls • HYCAR rubber and latex • GOOD-RITE chemicals and plasticizers

the FUTURE of FABRICS is in the FINISH

Dura Beau

Lanolized

Creamoyl

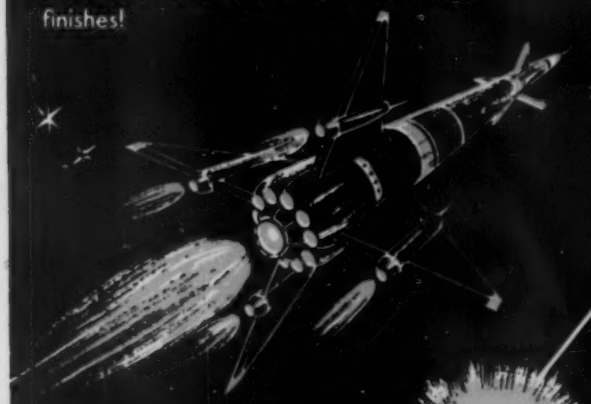
Polyeen

Duraseptic

Hysorb

Brosco-Tex

When the fibers are the same, it's the finish that makes the difference—enhances the inherent characteristics . . . adds properties and qualities that make fabrics more comfortable, more useable, more desirable! Ask your finishing plant about Scholler superior finishes—dependable products of America's foremost maker of fine finishes!



LANOLIZED FINISHES. Produce fabrics with unusually desirable cosmetic properties and superior comfort against the skin.

DURA BEAU RESIN FINISHES. For hosiery and other fine fabrics that require superior qualities of "hand" plus added properties of fabric strength, stability and surface smoothness.

CREAMOYL FINISHES. Economically add a high degree of softness and smoothness in practically all fibers and fabrics.

POLYEEN FINISHES. A superb finish that produces a wonderfully soft, resilient, natural "hand" in the heavily resinated fabrics.

DURASEPTIC. A finish additive that inhibits growth of bacteria on fabrics, minimizes perspiration odors, retards mildew!

BROSCO-TEX. A new finish designed to enhance tufted fabrics of all kinds, assures better maintenance of pile, superior resiliency and more desirable hand.

HYSORB FINISHES. Produce a "thirst" for moisture in the normally moisture-resistant fabrics of man-made fibers!

Scholler

PIONEERS IN THE BETTER FINISHES THAT MAKE THE BETTER FABRICS

Manufacturers of Textile Finishes, Resins, Softeners, Detergents, Soaps, Oils and Specialties.

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PROXOCREAM

PROCTER & GAMBLE'S SENSATIONAL NEW CONCENTRATED NONIONIC SOFTENER, LUBRICANT AND ANTI-STATIC AGENT. NOTE THESE RESULTS:

- 20% improvement in sewing a resin treated viscose French Crepe.
- 30% improvement in sewability with a resin treated cotton print cloth.
- 50% improvement in sewability on another resin treated cotton print.
- 15% improvement in sewing a sulphur-dyed black cotton lining fabric.
- 50% improvement in sewability of a water repellent cotton poplin.
- 8% improvement in sewability on a cotton knit fabric.

PLUS . . . ALL THESE EXTRA ADVANTAGES:

- Complete compatibility
- No chlorine retention
- Non-yellowing
- Smooth round hand
- Low usage cost

Call your Procter & Gamble Representative, or
MAIL COUPON FOR FULL INFORMATION

Procter & Gamble, Specialty Products Department
Textile Finishes Section, P.O. Box 599, Cincinnati 1, Ohio

Please send complete technical information, including results of comparative tests, concerning PROXOCREAM.

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let's talk about...

Laurel Emulsions

. . . first in conditioning and lubrication of both natural and synthetic yarns.

One of these—or another—Laurel Emulsion for natural and synthetic yarns will do a better job, with less work, at lower cost. There's one best emulsion in the Laurel Line to condition and lubricate any yarn . . . better.

LAUREL RUXITE A

. . . a quality lubricating and conditioning agent for cotton, wool, and synthetic spun yarns. Adaptable to rayon novelty yarns, it improves softness and running qualities. Forms highly stable emulsions with water.

LAUREL HYDROWAX HC

. . . especially prepared for tufting yarn producers. Restores rayon, cotton, or blended yarns to proper condition and imparts lubrication for better-running yarns. Easy to apply evenly, it's completely saponifiable for protection in scouring and dyeing.

LAUREL HYDROCOP and 3B SOFTENER

. . . first choice of knitting yarn manufacturers. Gives smooth running and even stitches, making for stronger yarn with fewer breaks. Causes no odor or color changes; easy to prepare; for natural or synthetic yarns.

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CIRCLE 250 ON READER SERVICE CARD

BRIEFS

on caustic soda economics
lauryl pyridinium chloride
several textile chemicals

50% TO 73% CAUSTIC SODA . . . DOES IT PAY TO SWITCH?

It depends.

Check your savings on freight for 73% caustic. Then subtract the annual depreciation on the dilution equipment you'll need.

If you still show a saving, it would be wise to consider the big switch seriously.

We'll be glad to help you survey the economics of 50% versus 73% caustic. Just send for a copy of our Caustic Soda Buyer's Guide. It contains a handy nomograph that helps you estimate possible annual savings on 73% caustic soda.

Our representative can help you with further details. Just write our nearest Hooker sales office.

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You cut costs of making rayon when you put lauryl pyridinium chloride in your spinning bath.

This chemical keeps spinnerettes clear of suspensions and reaction products. It washes away impurities like precipitated cellulose, sulfur deposits, resin particles, and secondary reaction products.

Our product is 85%-pure alkyl pyridinium chloride. It is soluble in water and in a variety of organic compounds.

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If you'd like information on other Hooker chemicals for the textile industry—such as chlorine, oxalic acid, potassium carbonate, trichlorethylene—send the coupon for data sheets. These data sheets will fill you in on specifications, descriptions and typical data.

Maybe you'd like our chlorine manual, too. It's a de luxe hard-cover book packed with practical information. A check on the coupon will bring it to you.

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...GIVE YOU A SELLING EDGE!

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*Du Pont's registered trademark for its acrylic fiber. **Du Pont's registered trademark for its polyester fiber.

Enjoy THE DU PONT SHOW WITH JUNE ALLYSON, Thursday nights on CBS-TV.

CIRCLE 117 ON READER SERVICE CARD

What is the meaning of this new Fortrel?

POLYESTER

Because we believe that the American and world markets have far to go before they are as well-dressed and attractively-housed as new fibers and fabrics can make them . . . Because we believe that there is room—and *need*—for new fibers, Celanese now brings to market the new polyester, FORTREL.

WHY A POLYESTER? Continuing long range market analysis convinced us some time ago that the polyester group—strong, dimensionally stable, durable, tremendously resilient, almost perfect as a blending fiber—has the greatest utility and broadest application of any of the new man-mades.

WHY FORTREL? Polyester fiber, invented in England, was developed by Europe's largest chemical manufacturer, Imperial Chemical Industries. With their vast technical and engineering resources, they have built up a leading world position in polyester chemical and fiber production. So, when opportunity arose to form a joint Celanese-I.C.I. company to produce polyester in this country, we welcomed it. We felt that the combination of I.C.I. manufacturing and research skill and our knowledge of the American market could create important new values for the American textile industry.

HOW WILL CELANESE MERCHANDISE FORTREL? The key to Fortrel merchandising will be Quality Control, based chiefly on a licensing program at the converter level. Testing will be in terms of intended end uses. Identification will be energetically policed. (Details of this program are available upon request.) In addition, a massive advertising, promotion and publicity program has been designed to build a national brand name and consumer franchise.

THE OPPORTUNITY. We are confident that the entrance of Celanese into the polyester field with new fabric developments, new marketing ideas, new promotional approaches, constitutes a rare opportunity for aggressive, imaginative merchants at all levels of the trade. For more detailed information, contact Celanese Fibers Company, 180 Madison Avenue, N. Y. 16, (a division of Celanese Corporation of America).

*Fortrel is a trademark of Fiber Industries, Inc.

Fortrel*

Celanese® NEW POLYESTER FIBER

the fiber that keeps its promise

What's new this month in . . .

Fibers, Yarns, and Fabrics

By CAROL WILHELM, Copy Editor, TEXTILE WORLD

Made on the Double

Something's new at Milliken. It's a double-knit, wash-and-wear jersey fabric. Knitted of a blend of 70% Acrilan and 30% wool, the new fabric is slated for use in women's coats, suits, and dresses. It's available in a complete range of yarn-dyed colors.

The fabric is knitted on circular knitting machines imported from Germany. The machines simultaneously knit two back-to-back jersey stitches. The double-knit construction is well suited for fancies.

Soon in Production

Courtaulds Alabama, Inc., will start commercial production of its high wet-modulus rayon fiber in La Moyne, Ala., later this month.

During the experimental stage of the fiber, the company called the fiber SM 27. Now the fiber will carry the trademark Moynel.

Caprolan Price Dips

Allied Chemical's Fiber Marketing Dept. has announced price reductions of from 2 to 5¢ per pound for Golden Caprolan nylon tire and cordage yarns and Caprolan heavy yarns used in upholstery and industrial applications.

The price reductions apply to orders placed after August 11. The price of a special group of 19-denier-per-filament heavy yarns remains unchanged.

Festive Package

Holt Hosiery Co. is offering its Jamboree hosiery in a new self-sell package.

The company uses a four-color motif to suggest paper-streamer and confetti gaiety.

The front of the package has a see-through inspection window. The shape of the window is suggestive of a bongo drum. The back of the envelope is divided into three panels. The center panel is clear for inspection of the hosiery.

Four Firsts

Lamart Corp. has introduced four new forms of laminates.

One is a metalized Mylar fabric laminate with a two-way stretch. Corners can be made easily. This fabric is available in a variety of colors and patterns in die-cut, precut sheets or in rolls to 54 inches wide. End use: book bindings.

Another is an improved vinyl laminate bias. This comes in 35-in. width.

A third—another metalized Mylar laminate—has a self-adhering backing. This is available in cut-to-size sheets or in rolls up to 54-in. width.

The fourth form is a laminate of 24K gold to a rubber-coated nylon fabric. This gold laminate may be obtained in continuous rolls 36 inches wide, 100 yards long.

Knits: Spring '61

Allen Knitting Mills, William Heller, and Seco Mills are showing their spring '61 collections of knitwear.

Allen is showing blends of 50% Corval and 50% Acrilan in three styles: plain jersey, crepe stitch, and waffle-type. All are available both permanently pleated and flat and in a wide range of colors. The fabrics are all of 6½-oz. weight and are 52 to 60 inches wide.

William Heller is showing a blended knit of 50% Corval and 50% Arnel. Light in weight, the fabrics are available in three types of knits: plain jersey, a fine rib, and a honeycomb. About 75 fancies are available in 33 color combinations.

Seco is showing knitwear of Coloray and cotton. Knits are plain and textured.

New Shoe Lining

Pepperall Mfg. Co. has introduced a new shoe-lining fabric for perforated shoes.

The new fabric has non-fray qualities. Its called Pepperon-RL. The R stands for resin, with which the face of the fabric is treated. The L stands for latex—the treatment on the back.

Offer from Abroad

Filatura Cascami Seta, subsidiary of Snia Viscosa, is spinning yarns that—when woven into fabrics—create a silk-like quality. Such properties are achieved by spinning the yarns on the silk system from long staples rather than spinning short-staple fibers on the cotton system.

Last month Gerli & Co., Inc., presented a collection of fabrics that contained these new yarns. Patterned and solid-colored fabrics were shown. Slated end uses: high-fashion apparel, drapery, and upholstery. Highlights in the showing were fabrics that contained viscose and man-made-fiber yarns. They resembled silk fabrics in hand, drape, color, and luster.

Some fabrics contained such yarns as Cascami's Lilnova—a blend of long-staple nylon 6 and long-staple viscose fibers spun on the silk system; Lipschappe—a blend of combed long-staple nylon 6 and silk fibers; Snia's Napoli—a blend of various deniers of viscose semidull fiber; and Perugia—spun on the worsted system from semidull and bright viscose fibers or from blends of wool and viscose.

Treat for Jersey

Alamac Knitting Mills is offering a new jersey called Thalmatte. At present it is being used in women's garments. Men's-wear manufacturers will probably use the new

. . . *Turn the page*

jersey in their spring lines.

The new jersey—of 80% Orlon and 20% wool—has been treated with a new Du Pont-developed fiber-sealed process. The treatment makes possible more lively, fuller-bodied fabrics.

Latest in "Furs"

Borg Fabrics has introduced a new pile fabric of Darvan. And Annis Furs has designed a group of greatcoats of the new fabric for women. Available in white and pale champagne shades, the coats will retail for about $90. Annis is offering the coats to about 25 stores on a confined basis.

Requests Fitted

Bates Fabrics, Inc., is now offering hand-screened printed sheets to fit odd-sized beds. The new sheets are offered in fitted and flat sizes. The new sizes were the result of consumer requests.

The size range in the Glory Rose pattern includes twin mattress—36 x76 inches; double mattress—54x 76; long twin mattress—39x80; long double mattress 54x80; queen-size mattress 60x80; and also for twin foam and double foam rubber.

New Look in Knits

Princeton Knitting Mills, Inc., is introducing a new curled pile knit fabric in the lines of leading sportswear and boot manufacturers this fall.

The new knitted fabric has a 100%-Dynel facing and a cotton backing. The company has developed new finishing equipment that achieves the curled-face effect. The fabric is available in a natural off-white at the present, but Princeton is working on a complete range of colors for expanded outerwear style directions with the new fabrics.

3 Stories to Tell

Wamsutta tells one new story—a color story—in its spring lines of sportswear and outerwear fabrics for men and boys. Greens, golds, and blues are available in wider ranges. Earth and stone tones are mellowed; antique golds heightened with added tones. The featured colors: King Oyster, off-tone greens, mellow golds.

Another interesting story told in the new spring collection is surface treatment. For instance, the Veriset fabrics—of 88-12 cotton-Verel—show patterns that include two reversed, raised cords, a diamond sheen weave, and a poplin.

The company is also weaving a new story for men's wear for spring—a blend of 55% Dacron and 45% viscose rayon. The new line, called Wamora, is available in three weaves: bengaline, chain weave, and serpentine. All fabrics in this new line are treated with the Suttamatic automatic wash-and-wear finish.

Pepperell News

Pepperell Mfg. Co. is offering a new honeycomb-woven blanket for use in hospitals.

The all-cotton, all-white blankets, called the Guardian, is especially treated. It can be sterilized without changing its appearance.

The Guardian comes in hospital-bed size—66x90 inches. Cost to hospitals is $7.50.

New Clean-Up Aid

Chicopee Mills, Inc., is marketing a quilted fabric for cleaning purposes. The new fabric is called Jet-Towels.

Towel costs are cut in half, the company points out, since the towels can be used time and again. A quick rinse and they are free of all soil.

Heavy on Texture

Nathan Schwartz & Sons, Inc., has introduced a new textured nylon yarn processed by a newly developed method.

The new process can texture yarns of 200 denier or higher, thus producing finished heavy textured yarns with a minimum of plies.

The company says that knitters may use the yarn on both circular and full-fashion knitting machines. They may also use the yarn on multified machines without getting a barré effect.

End use: Bulky sweaters for men and women, and outerwear for children.

Blankets Go Romantic

Chatham Blankets, Inc., has introduced a new winter-weight, hand-screen-printed blankets in its fall line. Name: Orchids in the Moonlight.

The orchid design is interlaced with ribbons. The blanket is available in the orchid shade only.

A blend of rayon and nylon, the blanket (72x90) costs $5.40.

New Plant Opens

Hartford Fibres Co. has announced that it has opened a new plant in Rocky Hill, Conn., for the production of Zantrel, the company's polynosic-rayon fiber. The plant was opened last month.

Line Adds Rayon

Joseph Bancroft & Sons Co. has added another member to its family of Everglaze fabrics. The latest addition: rayon fabric treated with a new finish.

The new treatment makes possible the production of no-iron rayon fabric and garments with a wash-and-wear rating between 4 and 5. It makes the fabrics commercially competitive with the fine cottons and man-made-fiber fabrics on the market.

Prices Go Up

Dow Chemical Co. announced last month that the prices of certain types of its Lurex metallic yarns are going up. New prices are effective as of October 1. Types of yarns affected: Gold, silver, and solid colors in the Mylar foil and metalized Mylar types of Lurex.

From Callaway

Callaway Mills is introducing a group of bath towels of cotton and Avril. Three styles in ten colors compose the initial offering. Retail price for towels: about $3.

Demand for Creslan is growing because of its competitive advantages, because of its versatility, and because of its association with many of the greatest names in merchandising. Discover the exciting possibilities of Creslan in your mill. Write for TECHNICAL DATA BULLETIN containing full description of Creslan qualities and properties. Creslan acrylic fiber is a product of American Cyanamid Company, Fibers Division, New York. CYANAMID

Offices: 111 West 40th St., N. Y.; 3333 Wilkinson Blvd., Charlotte, N. C.; 2300 South Eastern Ave., Los Angeles, Cal.; 40 Fountain St., Providence, R. I.

LEARN WHY THE DEMAND IS GROWING FOR Creslan®

ACRYLIC FIBER

THE NEWEST OF THE ACRYLICS

A close-up of one of the biggest trademarks in the textile industry

The big red "A"-Acrilan® trademark is the symbol of quality in fabrics. No trademark enjoys a greater acceptance. To consumers, the big "A" is a symbol of the high quality of the products they buy, because it is granted only to those mills and manufacturers meeting the specifications of Chemstrand's licensing agreement.

Throughout the years, fabrics made with Acrilan acrylic fiber have gained widespread popularity; to meet the ever-growing demand for products bearing the "A," new fabrics are constantly being developed. With the big red "A," you have one of the biggest trademarks in the industry working for you. Backed by million-dollar campaigns. So tie-in with the red "A"-Acrilan trademark, and you'll tie into extra profits.

Chemstrand has licensed this ***"A"-Acrilan trademark*** *as an ingredient trademark for those fabrications that provide utility, styling and consumer value. In order to obtain a license to use this trademark, the fabrications must meet certain rigid specifications as established by The Chemstrand Corporation.*

ACRILAN
*
ACRYLIC FIBER
*Reg. T. M.s of Chemstrand

Chemstrand makes only the fiber; America's finest mills and manufacturers do the rest.

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 350 Fifth Ave. New York 1; 3¼ Overwood Rd., Akron, Ohio; 197 First Ave., Needham Heights, Mass; 129 West Trade St., Charlotte, N. C.; California Office: 707 South Hill St., Los Angeles 14. Canadian Agency: Fawcett & Co., 34 High Park Blvd., Toronto, Canada • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND® NYLON—Pensacola, Fla.

a little CMC makes a BIG difference

Here's a photograph of good public relations in action. A clean stream, well populated with fish—a place of recreation for the community and yet, up the stream, a textile plant.

Does it cost a lot to contribute to this picture? Not when CMC is used. Hercules® CMC Warp Size provides a BOD of from 1 to 3% in actual use where most other sizes range from 15 to 80%. The drastic reduction of BOD possible with CMC Warp Size generally means the initial investment in a waste treatment plant and the yearly upkeep can be saved.

Pollution control, however, is only part of the CMC Warp Size story. CMC allows use of lower weave room humidities. Shedding is also lowered at the slasher and in the loom. As a result, you get cleaner weave rooms and reduced maintenance costs. Why not learn the full CMC story. For details, write:

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Virginia Cellulose Department

HERCULES POWDER COMPANY
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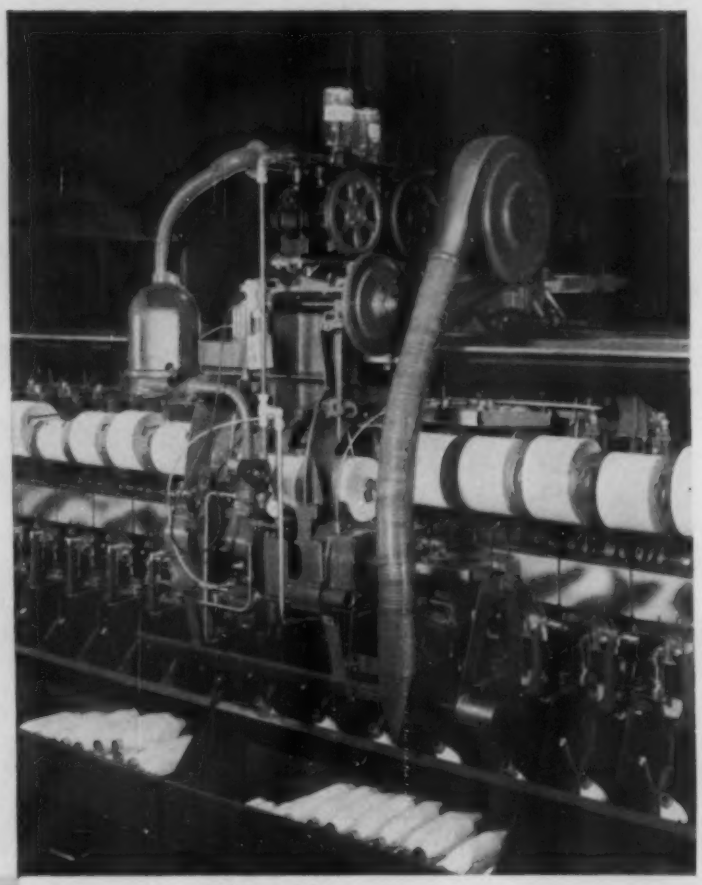
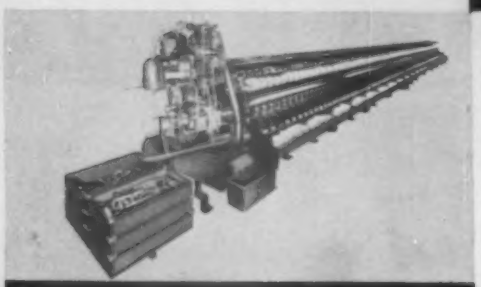
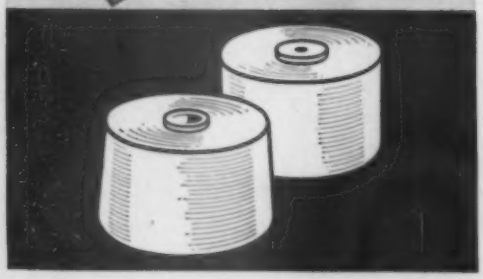
BARBER COLMAN

NEW TYPE "F" AUTOMATIC SPOOLERS

FOUR-COUNT OR MULTIPLE-COUNT







WIND CHEESES OR 6° CONES

The outstanding features of previous models are also available in the new Type "F" and "FF" Automatic Spoolers — arrangements to wind either straight cheeses or 6° cones, and arrangements for either one count on the whole machine, a different count on each of the four "quarters" of the machine, or a variety of counts extending to a different count in each "bay." These arrangements are planned when the machine is ordered, and are made when the machine is assembled on the floor. The advantage is that the ordering mill will get an Automatic Spooler of maximum versatility, exactly tailored to its needs, and capable of functioning at greatest efficiency and lowest cost. *For further details, we suggest you discuss your situation with your Barber-Colman representative.*

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NOW...KODEL IN BROWN AND NAVY

NEVER BEFORE... SOLUTION-DYED COLORS IN A POLYESTER

From the pioneer in solution-dyed acetate comes a major pioneering step in polyester fibers. Eastman, after announcing Kodel in black a few months ago, now brings you Kodel in brown and navy. For the first time you can get indestructible color-fastness in a polyester fiber. The new navy and brown have proved many times as fast as colors dyed by any other method known. And the styling possibilities are even more challenging! With solution-dyed colors you can get more dimension, more patterns, more color effects than ever before. If your field is woolen, worsted, rayon or cotton blends, this is a development you won't want to miss. And solution-dyed Kodel is in commercial production now!

Kodel is the trademark for Eastman polyester fiber

EASTMAN KODEL® POLYESTER FIBER

EASTMAN CHEMICAL PRODUCTS, INC., SUBSIDIARY OF EASTMAN KODAK COMPANY, 260 MADISON AVENUE, NEW YORK 16, N. Y.

Application of 1-color lacquer ring inside 3°30' cone nose

Sonoco has the answer to yarn identification!

Sonoco was among the first, years ago, to recognize an urgent industry need for economical, sure-fire ways to identify packaged yarn. This led Sonoco to one of its most important developments—the *first* lacquer-tipped cone. Not only did this provide a quick means for identification, it also produced a smooth, hard nose for better yarn processing.

Today, Sonoco uses lacquers, coatings and dyes in a number of methods for marking cones, tubes, cores, spools and bobbins. For example, the 3°30' cone-tipping machine pictured above applies a 1-color lacquer ring on the *inside* of the cone nose. This economical method is popular for yarns which do not require a super-smooth cone nose to prevent snagging in take-off.

The unique methods for yarn identification are typical of the advancements made by a fully integrated company with 60 years' experience in creating and producing all types of paper textile carriers. *Only Sonoco,* in its field, provides the necessary knowledge, skill and capacities to meet the ever-changing techniques of the textile industry. *Let Sonoco experience help you!*

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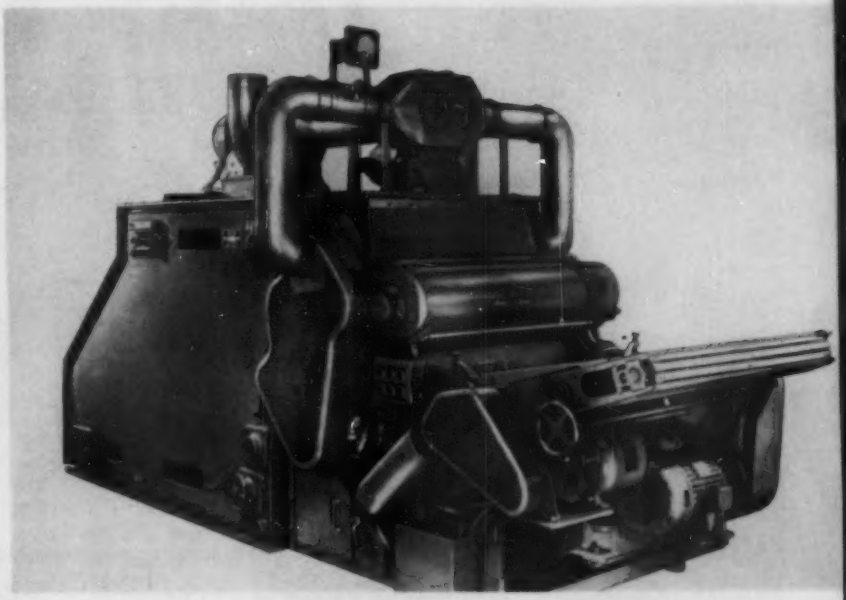
TEXTILE WORLD . . .
Equipment and Supply News

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to back cover.

Now— Webs from Short Fibers

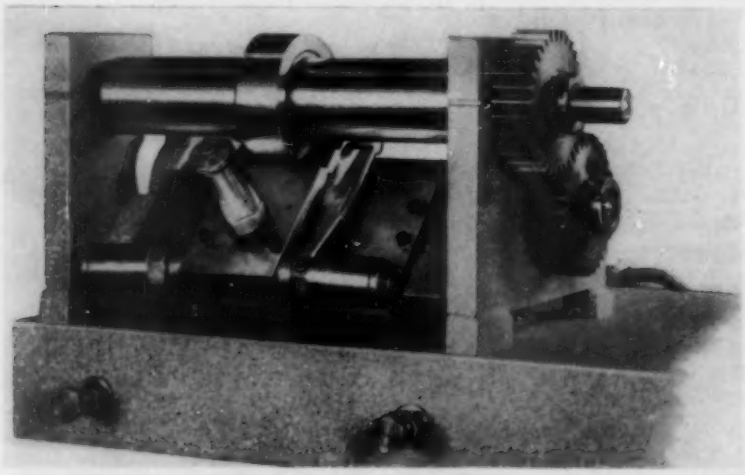


Continuous uniform webs from 100% short fibers, can now be produced using the Model 40B Rando-Webber introduced by Curlator Corp. Bleached sulphite pulp (wood pulp), linters, fiberized paper, metal fibers, fiberized leather, foam plastic, or flock may be used.

Production rates on 40-in. webs vary from a maximum of 300 pounds per hour with bleached sulphite to a maximum of 2,000 pounds per hour with metal fiber. Web thickness can be varied from a maximum of 3 inches down to ⅛ inch for bleached sulphite and 3 inches to $\frac{1}{16}$ inch for metal fibers.

This machine is designed for short fibers. But blends of short- and normal-length man-made or natural fibers are readily adaptable to this unit.

The machine measures 168x61x 83 inches. It weighs 6,250 pounds and requires a 10¾-hp. motor. The feed hopper has a capacity of 50 cubic feet (about two cotton bales). Another available model, can produce 60-in. webs. **(Circle E-1 on Reader-Service Card)**



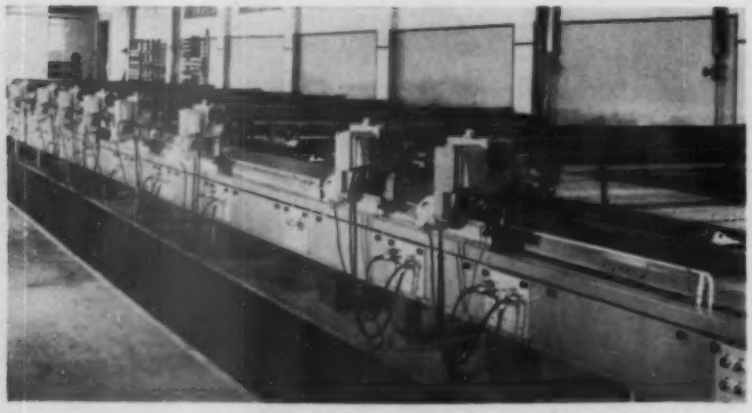
Crimper Handles 600,000 Denier

The Model DC crimper, for man-made-fiber tow, had been redesigned by Turbo Machine Co. Two air cylinders, one on each side of the delivery gate, control fiber in-feed. Another air cylinder, on top of the stuffing box, controls pressure on the stuffing box to regulate crimp level. Adjustable stops maintain minimum and maximum roll openings on the in-feed.

Tow feeds at a 45-degree angle from the lead-on roll. Crimper rolls are four inches in diameter. Unit adjusts to accommodate any width roll from ¼ to 6 inches and handles 100,000 denier of tow per inch.

The rolls are Vasco 7150 high-carbon, high-chrome steel hardened to Rockwell C58-62. Doctor blades, side plates, and hinge parts of the stuffing box, are stainless steel. Wear pads are bearing bronze. Ball bearings are mounted on each end of the roll shafts—sealed and prelubricated. Steel spur gears connect the rolls. The upper shaft has a 1-in. diameter with 1¾-in. extension to accommodate the 5-hp. motor normally required. The crimper weighs about 400 pounds and measures 24x24x13 inches. **(Circle E-2 on Reader-Service Card)**

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



One Screen Printer—12 Colors

An automatic screen printer, designed by Reggiani, S.p.A., now prints up to twelve colors. The machine is 81 inches wide with printing widths up to 68 inches. The overall length is 59 feet. Printer turns out 28-in. repeats on 12-color work, 65-in. repeats on five-color work. Pattern or repeat accuracy is ±0.1 mm.

The blanket moves at one foot per second, turns out 6 to 14 cycles every minute, depending on repeat width. With normal operation, 4,000 to 6,000 yards of fabric are produced in an 8-hr. shift.

The machine can handle any fabric—fine silk crepes, lightweight knitted fabrics, and pile fabrics. It features positive traction and transversal guide for the blanket. The squeegees are described as double oscillating, micro-set. They can be pre-set to any angle and can be changed during a printing cycle, if desired, for special effects.

Printer comes in lengths up to 72 feet and for special printing requiring up to 130-in. repeats. **(Circle E-3 on Reader-Service Card)**

Cam Action Brakes Spindles

The Supreme ball-bearing spindle designed by Roberts Co. now comes with a cam brake. The spindle also has precision ball bearings, which assure a smoothly operating antifriction spindle for high-speed operations with large packages. Speeds of 15,000 rpm. are possible with the new spindle.

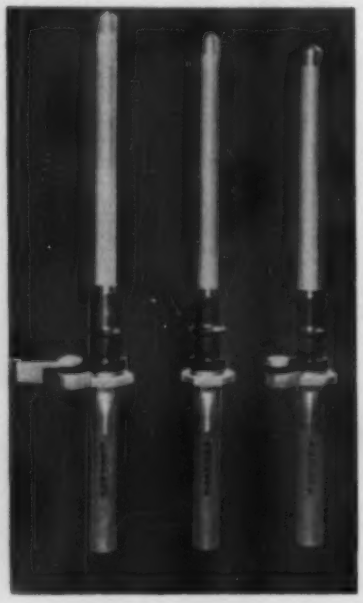
Unit is self contained. The brake is attached to the spindle base with one cap screw. Cam action is self locking and the brake may be removed for spindle plumbing. It is quickly and easily put back by fastening with the cap screw. Unit is available without the cam brake, which can be added later if higher speeds and larger packages require a brake.

Ball bearings are grease packed for durable lubrication. The bearing shield has an oil hole for special lubrication conditions.

The spindle features a one-piece base of heat-treated aluminum, small whorl diameters, and a smooth-finish doffer guard that keeps lint pick-up to a minimum. Rotating assembly can be removed without taking spindle base from rail.

Spindles are available for top drive tubes up to 12 inches long with ring sizes up to 3½ inches in diameter. Also available for top drive filling quills 8 to 8¾ inches long with ring sizes up to 1⅝ inches in diameter. **(Circle E-4 on Reader-Service Card)**

. . . *Turn to page* 130

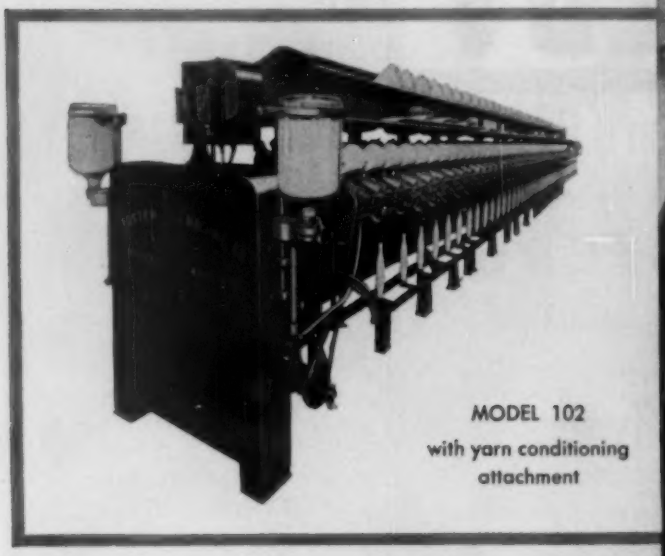


E-5—Laboratory oven is designed to conserve space. Double-door unit measures 48x30x36 inches and has an 11-cu.-ft capacity. Unit has a range of 100 to 250 F. The calibrated adjustable thermostat is in a recessed panel at the base protected by a Plexiglas cover. Unit is of heavy-gage steel finished in grey enamel. Interior is stainless steel and has three adjustable shelves. Asbestos strips, compressed at the doors, form seals against heat loss or air infiltration. Electric Hotpack Co., Inc.

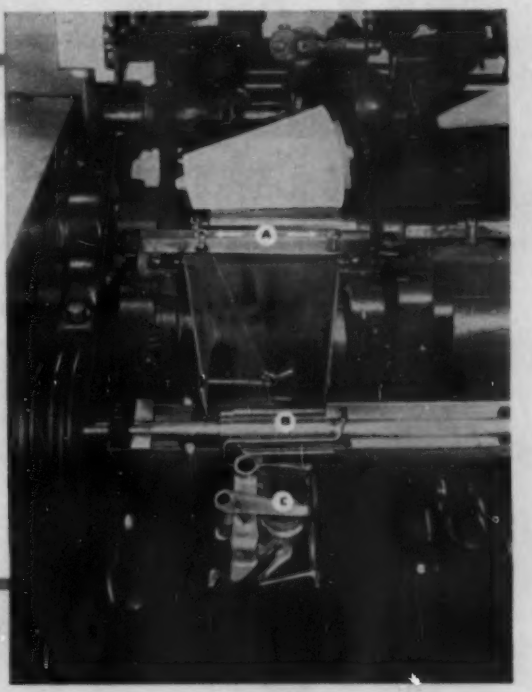
E-6—Picker stick of densified compressed beechwood works on all cotton, wool, and wide specialty looms such as those used for carpet and felt. Two types are available: solid wood and laminated veneer. The solid-wood type BN has a specific gravity of 1.4. It is recommended for C & K looms. Bolts and nuts at the stud hole make for added strength. The laminated-type BF has a specific gravity of 1.2. It is recommended for Draper looms. Features: wear resistance and mechanical stability. Lignostone Import Co.

FOSTER MODEL 102

. . . For Backwinding Bulk, Stretch and Texturized Yarns



MODEL 102
with yarn conditioning attachment

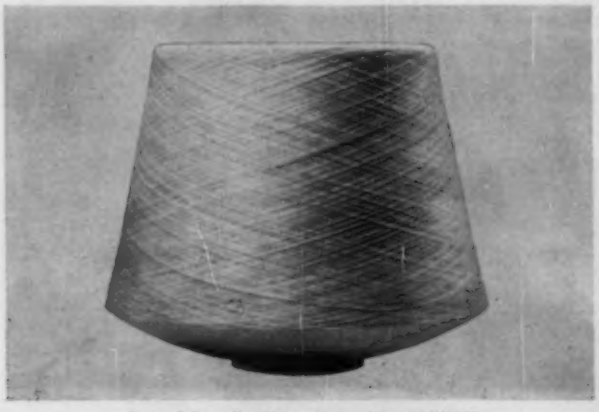


Mushroom buttons (A), moistening attachment (B) and tension attachment (C) on Model 102.

An Outstanding Example of This Machine's

FLEXIBILITY

For many years the Foster Model 102 has been widely accepted for the winding of all types and counts of spun yarns, because of its flexibility, or adaptability, including adjustable angle of wind and adjustable taper. Once again this reputation is confirmed by the machine's recent economical adaptation to the winding of bulk, stretch and texturized yarns.



142-9 Cone of Textralized® yarn wound on Model 102.

In addition to flexibility the Model 102 offers the following: —

QUALITY CONES. The increased taper reduces yarn drag and equalizes tension at all cone diameters. The convex base prevents "nipitis". Highly efficient slub catchers automatically inspect yarn. Ribbon breaker prevents ribbon wind. Idler shell on winding drum prevents chafing of yarn.

ECONOMY. Doubles production and reduces operating costs ½, as compared with obsolete machines, due to high speed, self threading tension device, easy donning and doffing and empty bobbin conveyor discharging into standard size truck. Repair costs as low as $10.00 per year per 100 spindles. Simple adjustments which any competent fixer can make.

Bulletin A-95-A on request

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

Southern Office — Johnston Bldg., Charlotte, N. C. • Canadian Representative — Ross Whitehead & Co., Ltd., 2015 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario • European Representative — Muschamp Textile Machinery (Sales) Limited, Elder Works, Wellington Road, Ashton-under-Lyne, Lancashire, England.

CIRCLE 129 ON READER SERVICE CARD

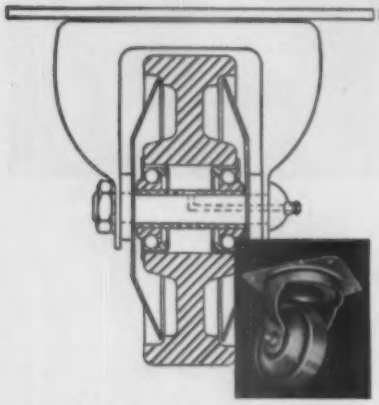
ACHIEVED!

Textile Casters That Won't Bind!

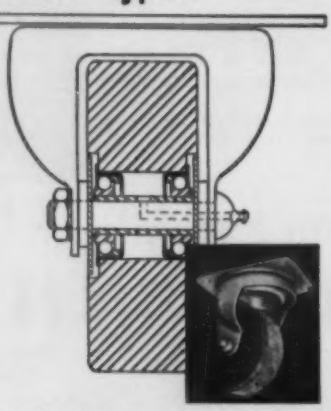
FAIRBANKS TEXTILE CASTERS

Never Before Such Sure-Fire Protection Against Threads And Lint!

Available In 2 Wheel Types:

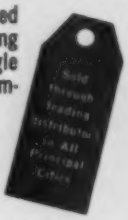


Precision cast, ballbearing semi-steel wheel—perfect concentricity; smooth, thick tread and big tread edge radius — protects floors and rolls and swivels easier. Threadguard protects in two directions: vertically, by tight fit to concentric inner edge of wheel tread; horizontally, by tight fit to molded step on web of wheel. Spacer washer, between threadguard and caster leg, eliminates V trap—allows lint and thread to fall free or, if caught, cleaning out without removing wheel. Available in 4 and 5 inch sizes.



"LAMILON", All-Plastic, ballbearing wheel permits standardization on one wheel for any section of the plant. Protects wood and concrete floors, resists sticking of ring travelers and gives excellent service in bleacheries and dye houses. Tight flush-face threadguard has very close fit in machined recess in wheel. Flush-face design decreases chance of falling lint and thread catching in wheel. Spacer washer, between threadguard and caster leg, eliminates V trap—allows lint and thread to fall free or, if caught, cleaning out without removing wheel. Available in 4 and 5 sizes.

Fairbanks patented "LOCKWELD" Steel Swivel Casters have eliminated the king-pin — major cause of swivel caster failures — providing stronger, easier swiveling, longer lasting casters. Available in single ball race, regular duty, sizes 2 to 6 inch; double ball race, medium-heavy duty, sizes 3 to 8 inch, with matching rigid casters.



THE **Fairbanks** COMPANY

Executive Office: 393 Lafayette Street, New York 3, New York

Valves • Dart Unions • Casters • Trucks • Wheels

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Equipment & Supply News

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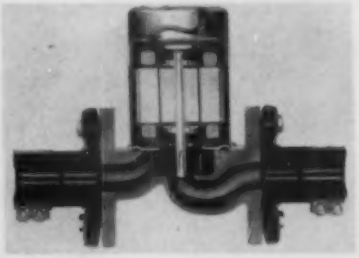
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-7—Roll-handling truck, called Jacklift, is designed for transporting heavy rolls of cloth, rubber, or paper in a horizontal position. Rolls are loaded from a vertical position, offering a clear controlling view for the operator. For transporting, the cradle tilts to a horizontal position, from which the roll can be fed to machines for any number of operations. The cradle will handle roll lengths of 66 inches and diameters from 30 inches to 38 inches. The truck is operated by a 12-v. battery. Lewis-Shepard Products, Inc.



E-8—Rotary pump, Dynapump Model 400A, is designed for clean, closed water systems. The unit measures 6x7 inches, weighs 11 pounds. It circulates up to 12 gpm. and is suitable for pressures up to 30 psi. and temperatures to 220 F. Equipped with automatic overload protection, it operates on 115 or 220 volts, single phase, 50/60 cycles. Pump needs no external lubrication. Fostoria Corp., Dynapump Div.

. . . *Turn to page* 135

tex

Doubler Ring Twisters
Standard, heavy-duty, high-speed . . . there's an U. S. Acme Twister for every application.

Fibre Glass Tube-Drive Twisters
The industry's standard — proven by every major glass fibre producer. New features, new capabilities.

Jumbo Texturizers
Big, *big* packages of "Taslan"* Textured Yarns — produced 10" by 10" from standard yarns.

Vertical Spoolers
New, higher spooling speeds with more spindles in less floor space. Cleans, oils, winds in one operation.

Combo Twisters
3 machines in one — conventional, headless package, and combination package up-twister.

UTEX BELTS
BARMAG TWISTERS
SCAGLIA SPOOL CLEANERS
MARQUETTE SPINDLES
WESTINGHOUSE MOTORS
McHALE FLYERS
INGERSOLL-RAND COMPRESSORS

UTEX INCORPORATED
A DIVISION OF U. S. TEXTILE MACHINE COMPANY

Designers and Manufacturers of
Processing Equipment for all Yarns — since 1929.
SCRANTON 8, PENNSYLVANIA, U. S. A.

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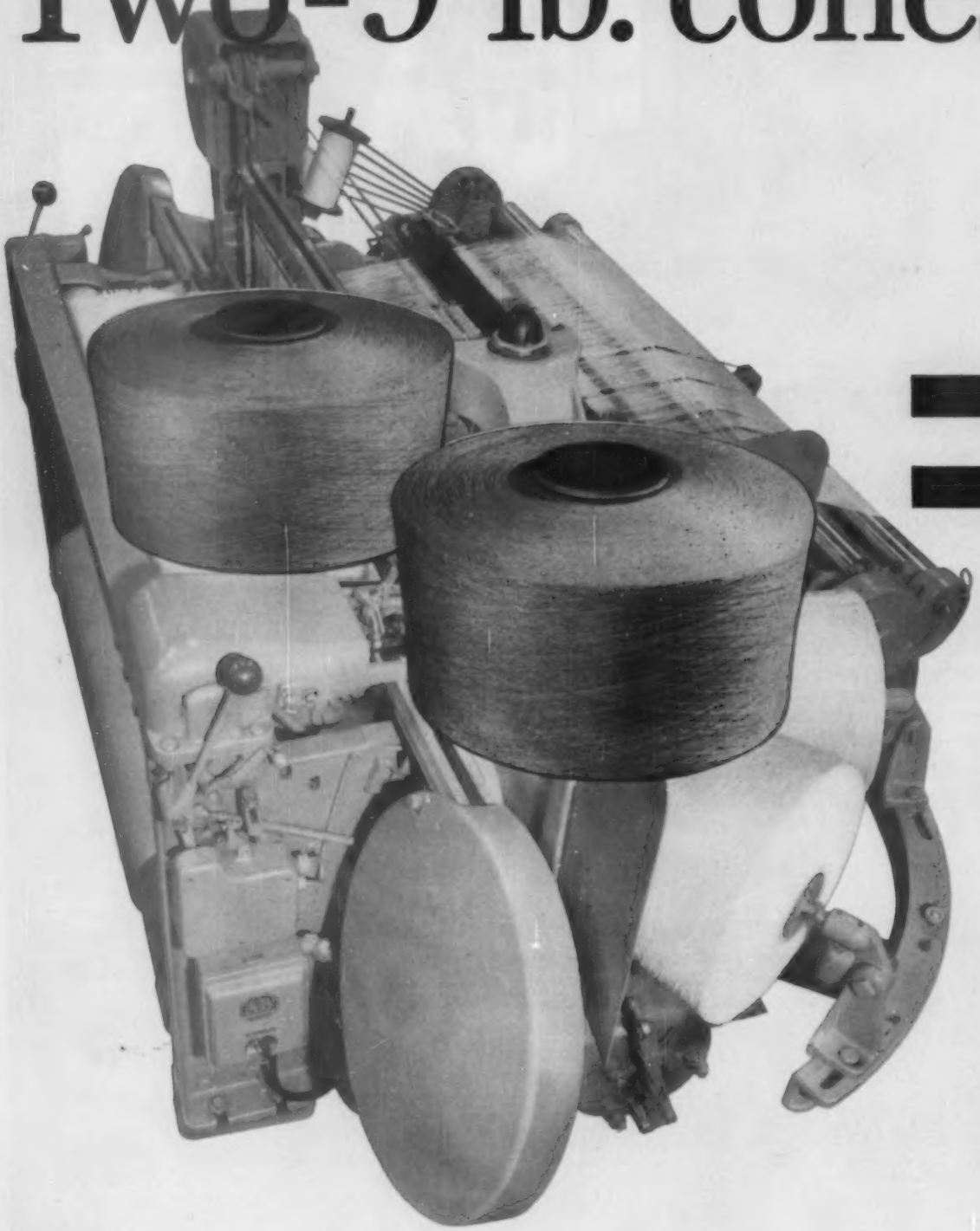
Toyko Boeki Kaikan Bldg.
Toyko, Japan

Muschamp Textile Machinery, Ltd.
Keb-Lane — Bardsley
Oldham (Lancs.), England

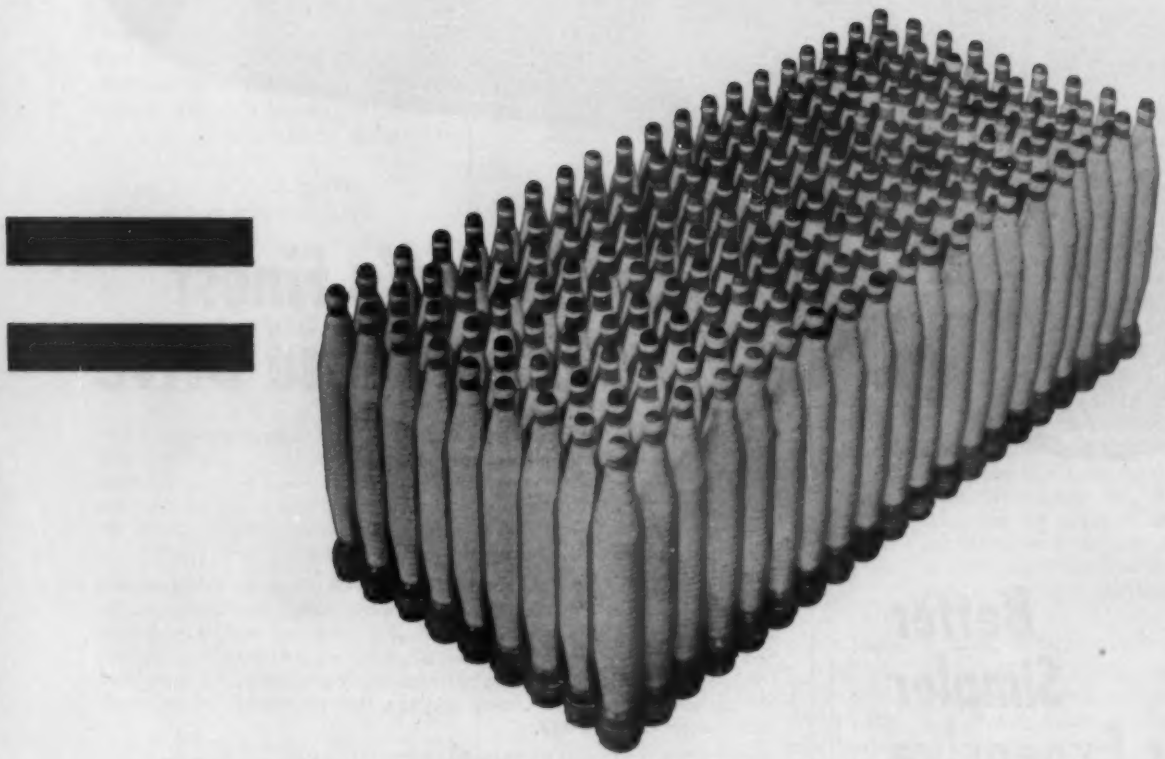
* *"Taslan" is Dupont's registered trademark designating textured yarns made in accordance with quality standards set by Dupont.*

CIRCLE 131 ON READER SERVICE CARD 131

Two-9 lb. cones



180 bobbins*



The Draper Shuttleless Loom, with its *compact filling supply, drastically cuts costs of delivering filling yarn to the loom.*

Two filling packages, each nine pounds in weight, supply filling yarn equal to that supplied by *180 conventional loom bobbins**.

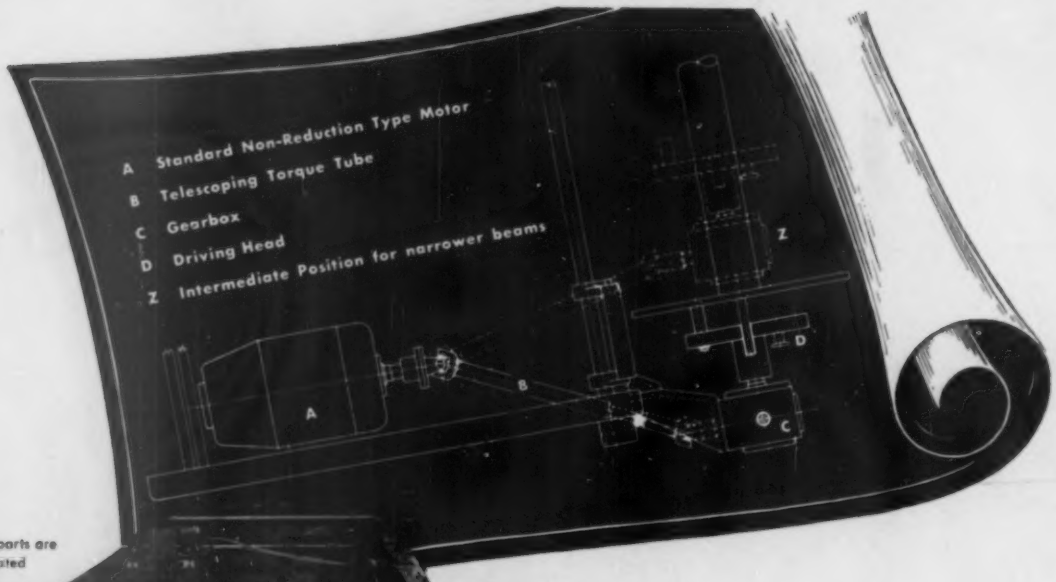
Less filling handling means; cleaner yarns, fewer cloth seconds, more continuous loom operation, and substantial reductions of weave room costs.

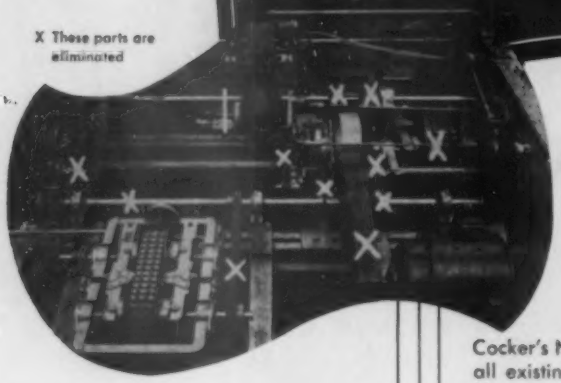
You are cordially invited to visit with us at our exhibit in Greenville, booth nos. 132-133-134.

**22's yarn / 1-7/16" diam (bobbin) / 8-3/4" length (bobbin)*

DRAPER CORPORATION

HOPEDALE, MASS. • ATLANTA, GA. • GREENSBORO, N.C. • SPARTANBURG, S.C.





The World's Finest Slasher Head Drive

Better Simpler Less Expensive

Cocker's New Slasher Gear Head Drive is a tremendous improvement over all existing drives. It eliminates troublesome belts, chains, and sprockets. These are replaced with a telescoping torque-tube drive* with two universal joints which transmits positive power to a gear reducer which drives the beam driving head direct. This is the same type drive which is used in the finest automobiles and on expensive machine tools.

LOWER INITIAL COST—LESS MAINTENANCE This new design permits the use of a basic 5 HP-DC motor of simplest design and eliminates the present expensive gear boxes, thus reducing initial cost materially. Simplified driving mechanism operates smoothly with very little maintenance. Only five places to lubricate. Working parts are easily accessible. The same drive will be used on all type Cocker Slashers, thus permitting "off-the-shelf" replacement parts service.

PROJECTING SPINDLES ELIMINATED Can safely run beams of any width without protruding spindles and with no sprockets or chains to slide in and out.

VIRTUALLY ELIMINATES NOISE

NEW CLEAN MODERN DESIGN

All other features of the superb Cocker head end remain the same as before —rugged construction, complete and accurate push button controls, full instrumentation, new, fast and simple beam doffing. Also available with Cocker's patented Beam Drive which provides constant adjustable tension regardless of speed or load. Speeds up to 150 ypm and 20% to 25% more yarn per loom beam with production rates of over 1500 lbs. per hour.

Write for full information today.

*Patent Applied For

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WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

Equipment & Supply News

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For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-9—Reed drawing-in machine operates efficiently on reeds with up to 140 dents per inch. Forward movement is controlled by an electrically driven screw. Speed is pre-set and a warning lamp indicates incorrect adjustment. Edda International Corp.

E-10—Vacuum coupling is designed for trouble-free performance. All-metallic construction permits operation at elevated temperatures. Unit is designed for repeat assemblies. The Ultra-High Vacuum coupling comes in ⅛- through ⅝-in. O. D. sizes. Cajon Machine Co.

E-11—Pushbutton filing brings speed and efficiency to visual record systems. The Electro Kardex file offers finger-tip control for more than 4,000 visual records. It's used for inventory control, personnel, production, purchasing, cost, and sales records. File operates by means of a pushbutton selector panel. Any record is automatically positioned at posting level. Remington Rand.

E-12—Torsion tear tester is designed to measure shear strength or tear resistance of fabrics. The instrument provides these three ranges: 125, 600, and 1200 in.-oz. Readings come directly from calibrated scale. Thwing-Albert Instrument Co.

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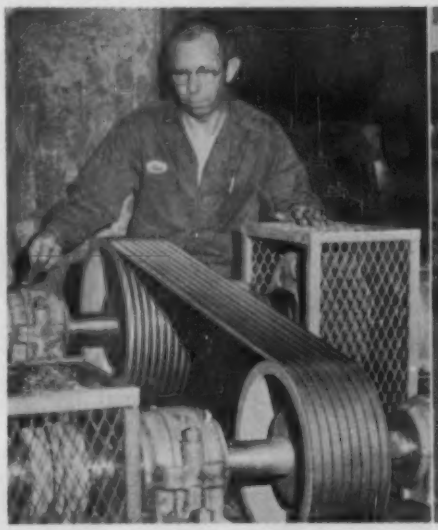
2 ways
Gates high capacity V-Belt Drives contribute to industry profits



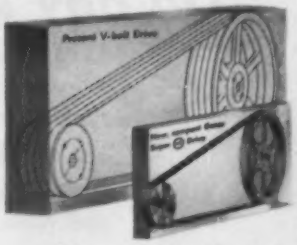
ON IN-PLANT EQUIPMENT, Gates Super HC V-Belt Drives lower maintenance costs—as on this pump at Scott Paper Company's Detroit plant. The pump was formerly driven by a special belt, but 6 of these belts failed in about 3 months. In comparison, a Super HC Drive has been operating for the past year with NO down time and NO replacement cost.

ON EQUIPMENT FOR SALE, Super HC High Capacity V-Belts produce savings all down the line—as on these sand pumps being readied for shipment from Denver Equipment Company's plant. With Super HC, sheave dimensions can be reduced 30% to 50%, overall space up to 50%, drive weight by 20%, and drive cost by as much as 20%, compared to previous drives.

A little more than a year ago Gates introduced a new high capacity V-belt—a slimmer, tougher, more flexible V-belt with far greater capacity to transmit horsepower than conventional belts.

Because this revolutionary V-belt permits narrower sheaves, fewer belts, and closer center distances, hundreds of plants across the country have found Gates Super HC V-Belt Drives contribute to profits in 2 ways: through marked savings in drive costs on production machines *within* the plant and on powered equipment manufactured *for sale*.

Gates V-Belt Distributors and Field Engineers are listed in the Yellow Pages in all major industrial centers. Ask your distributor for the handbook, *The Modern Way to Design V-Belt Drives.* TPA 544



same hp capacity in smaller "package"

The Gates Rubber Company, Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ontario

Gates

The Mark of Specialized Research

GATES SUPER HC V-BELT DRIVES

CIRCLE 135 ON READER SERVICE CARD

On any spinning system . . . with any fiber,

Whether your high-draft spinning system uses long or short aprons—or a combination of both—Accotex Aprons will help you get top-quality production.

All these aprons incorporate the two-compound principle developed and pioneered by Armstrong. They have just the right frictional properties for smooth drafting action . . . and superior fiber handling characteristics for good yarn control.

For the bottom position on long-apron systems, Accotex NO-7876 is recommended. These aprons have the super-flexibility needed for trouble-free drafting in this service. Their unusual resistance to flex cracking and ozone gives them long life.

Accotex Aprons spin quality yarn

On close-pin double-apron systems—or the top position on long apron frames—use Accotex NO-7075. These aprons have good resistance to abrasion and wear. They run smoothly—won't buckle or jam.

Your Armstrong man will be glad to arrange a test installation of these aprons. Prove in your own mill how they help improve yarn quality. Armstrong Cork Company, 6410 Dauphin Street, Lancaster, Pennsylvania.

Armstrong ACCOTEX APRONS

1860-1960 Beginning our second century of progress

CIRCLE 137 ON READER SERVICE CARD

THE *SMOOTHER* YOUR HANDLING, THE *MORE* YOU CUT COSTS

And you can't get faster, smoother, more efficient handling in textile processing than with Kennett Receptacles—first choice in the industry for basically better design, longer life, low cost.

Kennett Receptacles are made of National Vulcanized Fibre—not a fiber-board, but a tough plastic that combines light weight, strength, resiliency and an amazing ability to "take it" through years of abuse in mills. Most important, Kennett Receptacles are smooth . . . will not chip, tear, crush or splinter. Human hands cannot give delicate fabrics or yarns such gentle, snag-free handling. You cut container costs. You save in processing time. You cut loss from fabrics damaged in processing.

There is a Kennett size and design to fit any textile processing requirement, and Kennett products are backed by National's years of experience and proved dependability. For free line folder contact your nearest National Sales Office. Or write direct to Dept. BB-10.

KENNETT
RECEPTACLES BY
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Equipment & Supply News

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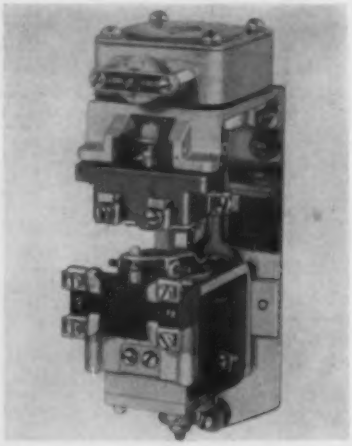


E-13—DC timer offers as many as two single-pole, double-throw instantaneous interlocks. Has adjustable timing range up to three minutes and can be changed from on-delay to off-delay. Removable front allows easy changing without removing timer from panel. Square D Co.

E-14—Electric vibrator, Model RC-2, is now equipped with speed regulator. Vibrations range from 1,500 to 9,000 per minute, with impact range of 9 to 300 pounds. Unit is designed for moving or settling materials where control must be quick and accurate. Built-in fuse prevents vibration burn-out. Vibrator weighs 14 pounds. Regulator weighs 4 pounds and is 6x6x5 inches. Wellman Co.

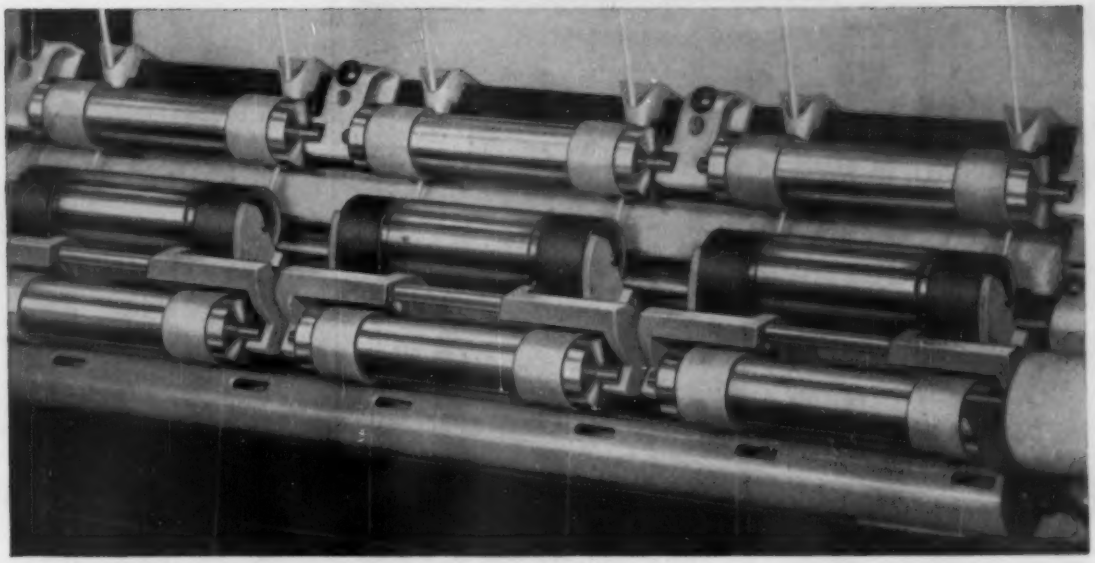
E-15—Flexible shaft, Called Circle Ess, comes in four cable sizes: 0.130, 0.150, 0.187, and 0.250 inches. It's available to two types: nondirectional for motor drives, and bi-directional for hand-operated control applications. F. W. Stewart Corp.

. . . *Turn to page* 140

Cleanest,
most efficient drafting unit
ever developed...

New Model
magnedraft

BY SACO-LOWELL



U. S. Patent No. 2,686,940

**Requires no lubrication in drafting zone —
Eliminates all conventional weighting equipment.**

Uses forces of magnetic attraction to produce required roll pressures — completely eliminates anti-friction top and bottom rolls, saddles, stirrups, levers, hooks, springs and weights. New, unique top front roll support allows quick "end around" piecing up. Due to few component parts, maintenance costs are reduced to an absolute minimum. Mills report that MAGNEDRAFT spins stronger, more even yarn with a substantial reduction in drafting gear wear.

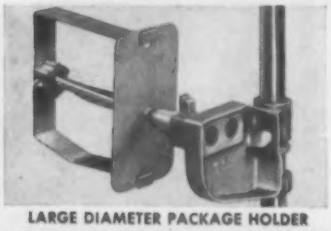
THE STANDARD OF QUALITY AND PERFORMANCE
Since 1813

Saco-Lowell Textile Machinery Division
SACO-LOWELL SHOPS
Executive and Sales Offices: EASLEY, SOUTH CAROLINA
Branch Sales Offices: ATLANTA, GA., CHARLOTTE & GREENSBORO, N. C., GREENVILLE, S. C., SACO, ME.

HERE'S HOW TO HANDLE ANY PACKAGE WITH McBRIDE VERSATILE PACKAGE HOLDERS

McBride Bowed Spring Spindle with cone and large package holders can accommodate every type of package used on Over End Take-Off today. Adapters feature the quick change design for instant placement or removal, to **cut down changeover time loss.**

UNIVERSAL CONE HOLDER



LARGE DIAMETER PACKAGE HOLDER

MERCURY SWITCH STOP MOTION

Let McBride study your creel requirements. You will be pleased with the improved efficiency, ease of operation, and rugged design of McBride creels. Creels for warping, weaving, winding, twisting, tufting, and knitting. Special laboratory warping units designed to suit your requirements.

Complete engineering service is part of every McBride installation

McBRIDE COTTMAN AVE. & WISSINOMING ST. PHILADELPHIA 35, PENNSYLVANIA

In Canada: Hugh Williams & Co., 27 Wellington St., E. Toronto 1, Ontario

Equipment & Supply News

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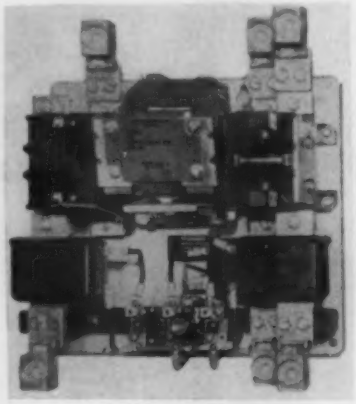
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

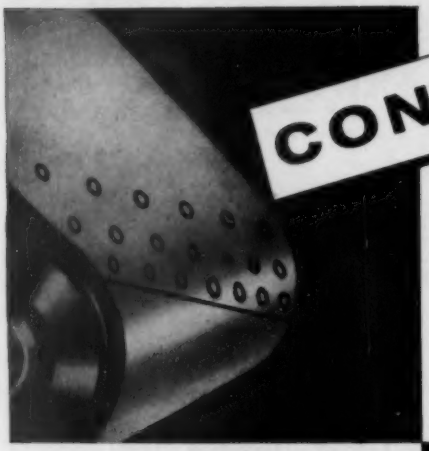
E-16—Strapping tensioner comes with self-energized feed wheel for manual heavy-duty strapping operations. It weighs six pounds. One to 1½ tons of tension can be applied to the strap. The tool takes a ¾ and 1¼-in. painted, waxed, or coated strap in gages from 0.028 to 0.050 inches. The sealing operation can be performed either in front or behind the tensioner. Signode Strapping Co.



E-17—Magnetic starter, Size 5, has four contact points to accommodate heavy current surges. The compact unit can be mounted in an 8-in.-deep enclosure and is 13x15$\frac{3}{16}$ inches. The parallel double-break contacts minimize bounce, heating, and wear. Overload protection is provided by epoxy-cast current transformers and low-current overload relays. The unit features an internal holding circuit interlock. There's room for four additional interlocks. The starter features straight-through wiring and removable lugs. Cutler-Hammer.

E-18—Mechanical agitator can be installed on existing dye baths. Dyeings are uniformly worked, which improves their reproducibility. Dye adds go on levelly, which is important for lab dyeings. The unit is adaptable to baths up to 48 x 30. It operates at 30 strokes per minute with the stroke adjustable up to six inches. Gibbs Machine Co.

. . . *Turn to page* 142

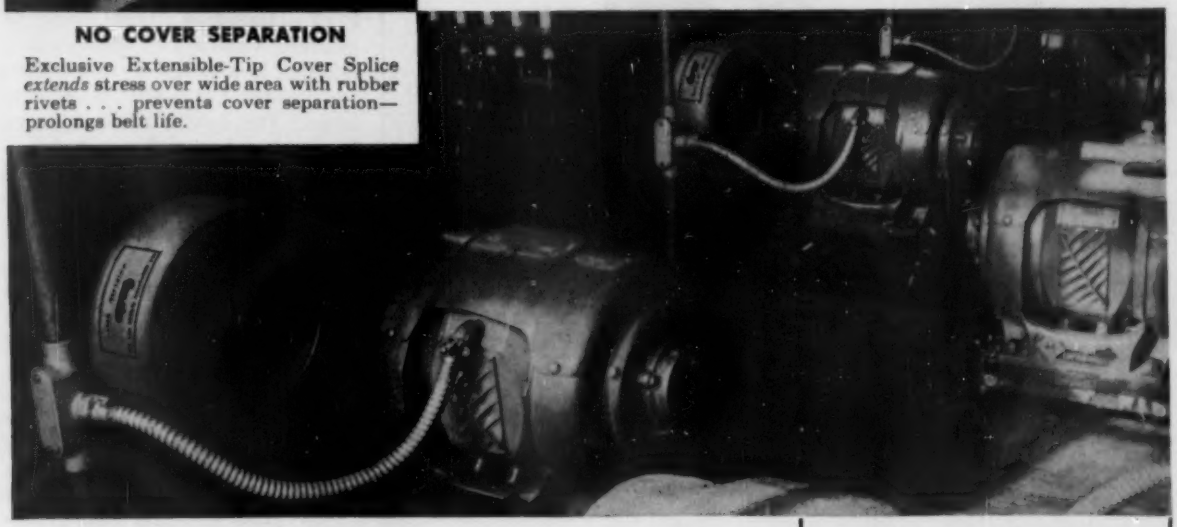


CONDOR *Whipcord* BELTS

OUTLAST *3 to 10* ORDINARY BELTS

NO COVER SEPARATION

Exclusive Extensible-Tip Cover Splice *extends* stress over wide area with rubber rivets . . . prevents cover separation—prolongs belt life.



Here's the all-purpose belt designed for hard wearing installations—ideal for drives with short centers and small take-up, small pulleys and reverse bends, high speeds and heavy loads at high tensions. Condor Whipcord Belt features an endless-wound, sealed-in cord construction which is prestretched during manufacture.

Extremely flexible, Condor Belts also offer exceptional advantages where serpentine drives supply power for several operations. They won't shrink and are virtually unaffected by atmospheric changes. And Condor's exclusive Extensible-Tip cover splice and rubber rivets dissipate stress when rounding pulleys . . . eliminate cover separation.

The results? Condor Whipcord Belts outlast as many as 10 ordinary belts on the toughest drives! Let an R/M distributor help you select the belt engineered to give *you* "More Use per Dollar."

ADVANTAGES

- **For High Speeds, Heavy Loads, Short Centers, Small Pulleys, Reverse Bends . . . at High Tensions**
- **Low Inelastic Stretch**
- **Length Unaffected by Atmospheric Changes**
- **Extremely Flexible and Strong**
- **No Ply Separation. No Splice in Tension Member**
- **Selection of Driving Surfaces to Meet Tension Requirements**

"MORE USE PER DOLLAR"

ENGINEERED RUBBER PRODUCTS ..."MORE USE PER DOLLAR"

RM1092

RAYBESTOS-MANHATTAN, INC.

MANHATTAN RUBBER DIVISION, PASSAIC, NEW JERSEY

ORLON SAYELLE®
ACRYLIC FIBER
package-dyed by Globe

REACHES NEW HEIGHTS OF COLOR LOVELINESS

Garments made from Orlon Sayelle®—lively, resilient, with a natural, wool-like touch—take on a distinct new look of quality and elegance when good styling is coupled with superior yarn dyeing. Give your fashions the competitive edge of long-lasting beauty and sales appeal by specifying Orlon Sayelle®—package-dyed by Globe.

Globe does package dyeing on tubes, skein and warp dyeing, warp bleaching and sizing.

Yarns processed include cotton, worsted, linen, blend and novelty yarns, and all synthetics including Arnel®, Creslan®, Orlon®, and Zefran®.

4500 Worth Street
Philadelphia 24, Pa.

Globe Dye Works Co

Since 1865

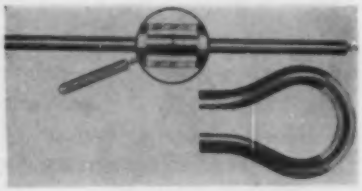
Equipment & Supply News

. . . *Begins on page* 127

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-19 — Industrial light can be mounted vertically or horizontally. It comes in a variety of arm lengths and uses two T-5, 8-watt, fluorescent lamps. The light is easily adjusted by hand, yet it will not budge—regardless of jarring or machine vibration. Fostoria Corp.

E-20—Muffle oven uses infrared heating. The design focuses all the heat directly on the work. The unit offers high-speed heating with accurate temperature control. It's available in both structural and modular design. Modules can be bolted together to any length required. Each module can be individually controlled. Inner cylinders come in 2 to 20 inches, in increments of two inches. Units larger than 20-in. inside diameter can be made by joining rectangular panels.



E-21 — Single-wire thermocouple comes with unbroken mineral-oxide insulation and sheath continuity. This construction makes it ideal for extreme temperatures, pressures, corrosive conditions, and physical stresses. The thermocouple is make of 24-gage wire and is available in 1/16 and 1/8-in. diameters. Two types are available: Type S (straight), and Type L (loop). Conax Corp.

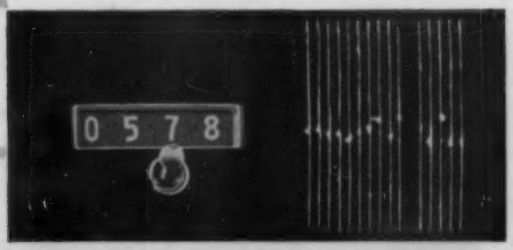
. . . *Turn to page* 144

USTER IMPERFECTION INDICATOR

IPI COUNTS

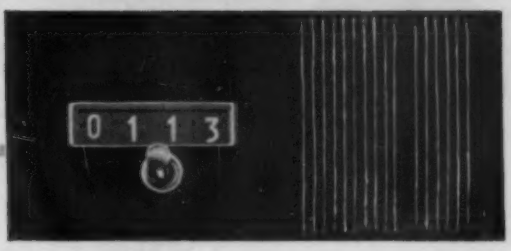
where it counts most— in yarn quality!

COUNTS NEPS



COUNTS THICK PLACES

COUNTS THIN PLACES



The Uster ImPerfection Indicator introduces an entirely new concept in yarn defect analysis. It counts neps, thick and thin places (chief causes of seconds in knitted or woven goods) in one operation with far greater accuracy than the human eye. Exact numbers of imperfections are tabulated and recorded on visual counters simultaneously with other tests being run. No additional personnel or testing time is required.

Loom stoppage can be more accurately predicted because IPI will show the number and seriousness of thick and thin spots in yarn according to preset sensitivity controls. It also automatically compensates for short and long term count variations in yarn, thereby indicating the seriousness of the defect in relation to yarn size.

For your convenience, Uster will make available world wide standards for use with this instrument.

USTER

USTER CORPORATION, CHARLOTTE 8, NORTH CAROLINA

© USTER CORP. 1960

Canadian Sales Offices:
Hugh Williams & Co., 27 Wellington St. East, Toronto 1, Ontario

CIRCLE 143 ON READER SERVICE CARD 143

Where RELIABILITY COUNTS MOST

Patent No. 2,836,439

—North Carolina Mill Installs

BARCO TYPE C *Rotary* JOINTS

- **RESISTS SEAL RING BREAKAGE**—The spherical seal ring is under compression, not tension, loading. Self-adjusting for wear. Seal withstands shock loads and alternating hot and cold service.
- **WIDE SPACED BEARINGS**—Two, instead of one . . . increased bearing area. No lubrication required. Lowest friction.
- **200 P.S.I. STEAM RATING**—Heavy duty service at *no extra* cost. Eight sizes, ½" to 3".

SEND FOR CATALOG 310

TODAY there is a better rotary joint for dry can and textile machine service. Barco's *Type C* joints give mills the kind of performance needed for efficient operation of new machines, as well as modernization of older machines.

The installation shown above is in a well-known North Carolina mill where this dry can range is one of the many now completely Barco equipped. 1" *Type C* joints handle steam supply and syphon drainage. This installation is the direct result of a thorough comparative test of the Barco *Type C* joint. *After more than three years, the first joint installed has continued to work perfectly with no attention, maintenance, or repairs!*

Barco joints are available from LOCAL STOCKS throughout the country. Standard series joints handle all steam pressures to 200 psi—one basic style for all services, single flow or syphon flow. ½", ¾", and 1" sizes are now furnished with bearing bronze sleeve and end cap for increased life and corrosion resistance—*guards against sticking when left idle.* ASK FOR INFORMATION.

BARCO MANUFACTURING CO.
534-L Hough Street, Barrington, Illinois
The Only Truly Complete
Line of Flexible Ball, Swivel, Swing and Rotary Joints
In Canada: The Holden Co., Ltd., Montreal

Equipment & Supply News

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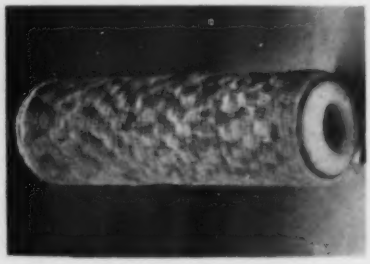
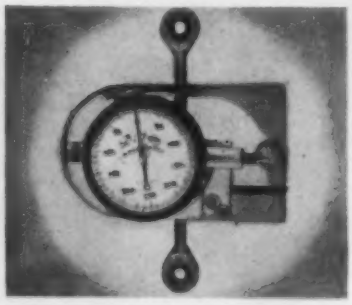
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-22—Centrifugal pump with leak-proof construction is designed for handling volatile, toxic, and flammable liquids. It is available in two sizes with capacities up to 100 gpm. The unit is constructed of ductile iron or Type 316 stainless steel. It is designed to withstand liquid temperatures up to 350 F. Pump is approved by Underwriters Laboratories as explosion-proof. Goulds Pumps, Inc.



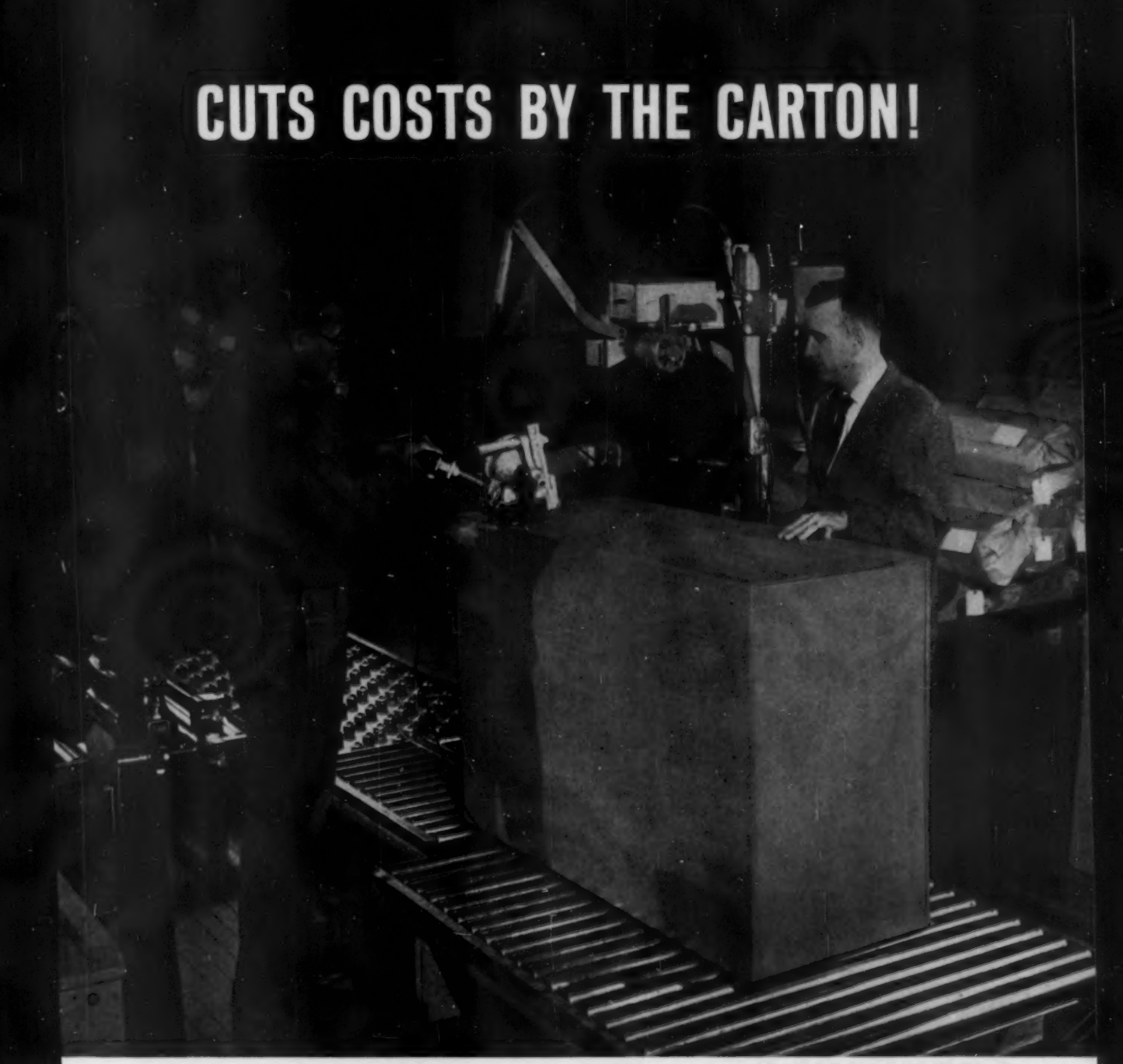
E-23—Liquid filter cartridge, called Feutron, is now available with Type 304 stainless steel-core. The filter is designed for lower pressure drop and increased solids capacity. It can now be used for installations where corrosive conditions exist. American Felt Co.



E-24—Force gage uses split dial to measure both compressed and tensile loads. The push-pull unit is available in 11 sizes with capacities from 5 to 25,000 pounds. It is accurate to within 1% of the full scale reading. The gage is applicable wherever pressure, tensile, or torque loads are to be measured. Micro switches are available. W. C. Dillon & Co., Inc.

. . . *Turn to page* 146

CUTS COSTS BY THE CARTON!



Acme Idea Man E. S. Lumpkin, wh suggested Idea No. S5-17, views it in action at Virginia Mills, Inc., Swepsonville, N. C.

This textile mill now straps 25% more cartons per day with only half the manpower! They simply converted from a two-man hand strapping operation to an Acme Steel fully-powered A4 Pneumatic Steelstrapper and E41 Power Strap Feed Unit.

The versatility of this equipment easily accommodates all sizes of cartons. And its speed allows the packing department to keep pace with increased production without adding personnel.

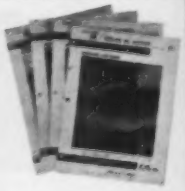
If *you* would like to pocket more profit by improving packaging techniques, call your Acme Idea Man, or send the coupon for facts.

ACME STEEL

IDEA LEADER IN

STRAPPING

CIRCLE 145 ON READER SERVICE CARD



ACME STEEL COMPANY
Acme Steel Products Division
Dept. TBS-100
135th St. & Perry Ave.
Chicago 27, Ill.

Please send me Idea No. S5-17 and examples of how major companies in my field use Acme Steel Strapping.

*Name*_____

*Title*_____

*Firm*_____

*Address*_____

*City*_____ *Zone* *State*_____

TENNANT-SEALED weave room floors are bright, dirt-resistant, easy to clean.

How your TENNANT Floor Specialist helps you

save ⅓ in floor care costs

Would you like your mill to have floors as bright and clean and durable as this? And at an annual cost up to a third less than you're now paying?

Your TENNANT Floor Specialist *can show you how.*

Makes floors dirt resistant. He can demonstrate, for example, the exclusive TENNANT SYSTEM process that actually makes your floors up to 3 times more resistant to dirt. And when they *do* soil, dirt wipes off easily in a fraction of the usual time.

Seal lasts twice as long. Your TENNANT Man will also demonstrate heavy duty floor seals which are *unequalled for durability.* Since they end the need for frequent refinishing, you'll save many gallons of material each year.

Used in 1000 major mills. More than 1000 of America's leading mills are now saving money by using the complete TENNANT SYSTEM of floor care. And most are following an *individualized* program which their TENNANT Man developed to fit their specific needs in each department.

WRITE TODAY *for an analysis of your floor care problem. You may be surprised at the saving you can make.* G. H. Tennant Co., 737L No. Lilac Drive, Minneapolis 22, Minnesota.

TENNANT

The Textile Industry's Most Widely Used

FLOOR MAINTENANCE SYSTEM

Methods

Machines

Materials

FLOOR MAINTENANCE SYSTEMS

Equipment & Supply News

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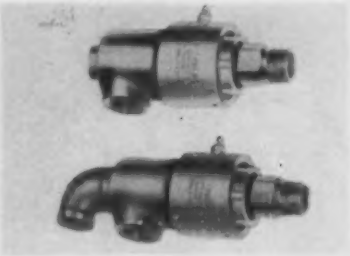
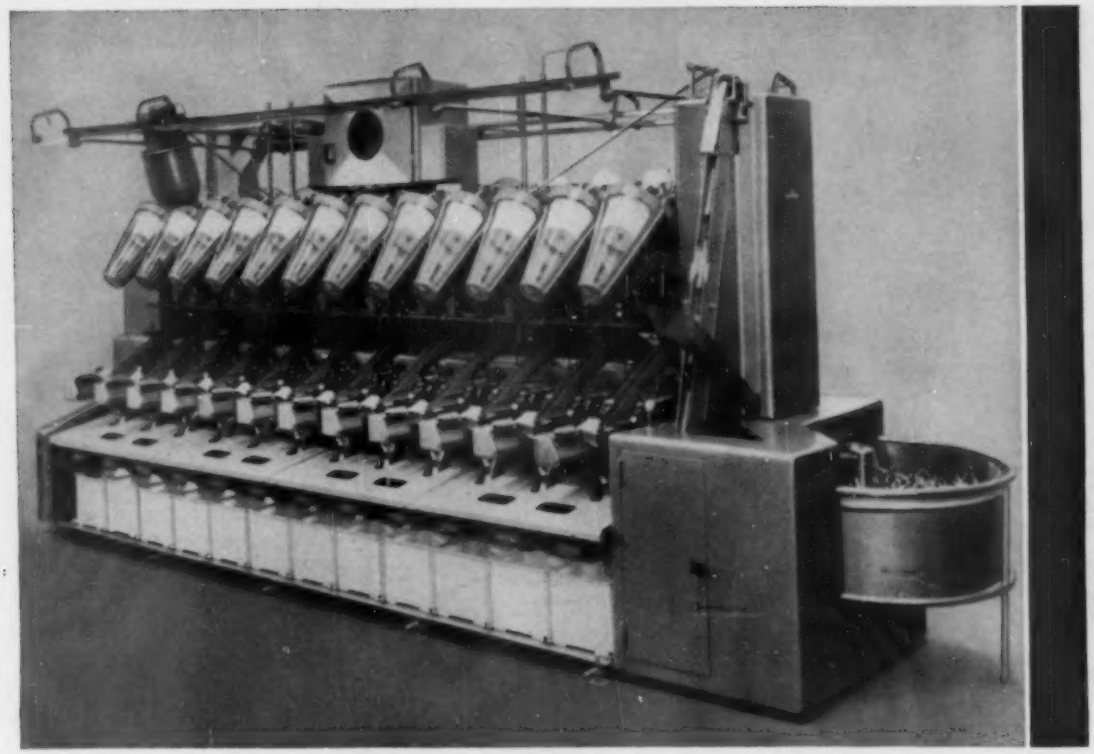
For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.



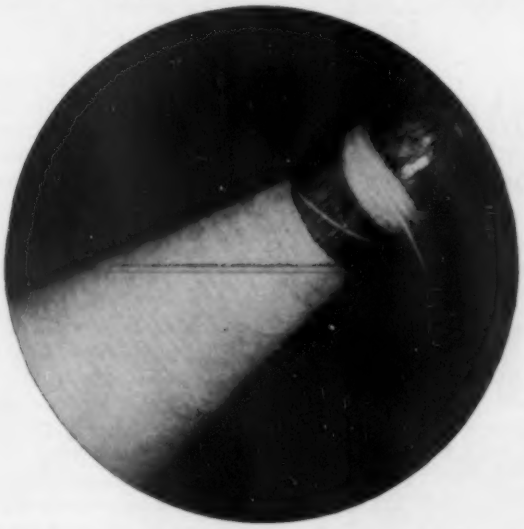
E-25 — Revolving connection, named Rotary Union, forms a positive seal between a stationary supply line and revolving equipment. Two types are available: single inlet, Type P; and dual inlet, Type S (where supply and return are required). Either unit handles gases or industrial fluids up to 250 psi. steam, and 500 F. It is available in pipe sizes from ¼ inches through 3 inches. Perfecting Service Co.

E-26—Variable-speed drive, called Speed-Trol, is designed for fractional-horsepower motors. Speed ranges from 1.2 to 4660 rpm. with up to 10 variations offered with ¼-, ½-, and ¾-hp. ratings. The large pulley assures cooler running and longer belt life. The unit meets NEMA standards and includes single-phase and three-phase operation. Housings offered are totally enclosed, dripproof, and explosion-proof. Foot-mounted or face-mounted, the unit can also be supplied with right-angle and helical gears. Sterling Electric Motors.

. . . *Turn to page* 148



SCHWEITER Automatic Filling Winder with the new parallel bobbin arrangement for the filling of all types of loom batteries



Our latest model
Automatic Filling Winder,
type MSL:

- with Dust Exhaust system
- with Parallel Bobbin arrangement– regular, or double size, boxes can be used
- equipped with ROTOR – for building Tailless Bobbins
- with, or without, Interlocking Tip Bunch for Automatic Loom Box loading

SCHWEITER LTD.
HORGEN (Zurich) Switzerland

Manufactured by **WHITIN MACHINE WORKS**, *Whitinsville, Mass., (U. S. A.) for sale in U. S. A. and Canada*
Manufactured by **SCHWEITER** *for sale in other countries*

CIRCLE 147 ON READER SERVICE CARD

Why Wrinkle Your Brow
Over Wrinkles in Cloth?
get
MECHO AIR GUIDER

Streamlined, it is precision-engineered, and accurate to within one-eighth of an inch. It ranges from 1 to 400 ypm.

Mecho's selvage finger is highly sensitive, yet very strong. It will prevent double edges turning on cloth. Mecho's adjustment lever changes the selvage finger tension (to accommodate any cloth from the lightest to heavy #8 duck) . . . *while in operation!*
Everyone engaged in wet processing needs a cloth guider, so make yours Mecho and forget your troubles.

Mecho Air Guiders can do your job; they guarantee you "Miles of Cloth without a Wrinkle." They've been standard equipment in hundreds of finishing plants for a quarter of a century! Their efficient and reliable simplicity makes them simply great! Why wait?

Write today for this helpful FREE Mecho Air Guider Catalog.

THE Guider SPECIALTY COMPANY

372 State Street, North Haven, Connecticut
Southern Representatives:
McSpadden and Scantland, P. O. Box 3635, Charlotte 3, N. C.

CIRCLE 251 ON READER SERVICE CARD

GUARANTEED

to give drip-tight leak-proof seal

greates[illegible] in unions DART

For over 55 years the firm guarantee back of each and every DART UNION sold has been — *"if one should leak through we will give you two"!* The record reveals that less than 1 in every 100,000 has proven to be faulty. The extra wide bronze to bronze seats, precision ground to a true ball joint, mounted in heavy malleable iron pipe ends and protected by an extra heavy union nut, make a drip-tight, leak-proof connection WITHOUT EXCESSIVE WRENCHING time and time again.

Guarantee positive tight connections and extra long service on your pipe lines by using the DART GUARANTEED UNION.

Yours on request: Descriptive brochure on Dart Unions and Union Fittings.

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393 LAFAYETTE STREET, NEW YORK 3, NEW YORK
BRANCHES: NEW YORK 3
PITTSBURGH 22 • BOSTON 10 • ROME, GEORGIA

Equipment & Supply News

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For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

E-27—Electric walkie trucks are designed for narrow-aisle operation. The tractor operates with either two 12-v. or four 6-v. batteries. It is designed with three speeds forward and one reverse. All controls are conveniently located in the handle. Truck is available in three types: (1) telescopic or nontelescopic lift type with a 2,000-lb capacity; (2) low-lift; and (3) platform type, both with 4,000-lb. capacity. A pressure-sensitive button located on the handle, instantly reverses direction and assures operator protection. Raymond Corp.

E-28—Fork-lift truck has 3,000-lb. capacity. It is equipped with pneumatic tires and power steering. Truck comes with a 12-v. electrical system and a complete instrument panel located for convenient checking. The unit has an automotive-type exhaust header pipe and a large muffler. Back pressure is reduced and the truck operates quietly. Lift speed is up to 55 feet per minute. Truck-Man Lift Trucks.

E-29—Yarn-tension device, called Cona-Mag, has electromagnetic control. The unit consists of two discs drawn together by an electromagnet. Equal tension between cones is obtained by controlling all tension units, with a central potentiometer. The traverse arm actuates a separate control to let-off tension as the cone diameter increases. The unit can be used with spun or filament yarn. Constant tension and small contact surfaces minimize dye streaks, yarn scuffing, strip backs, broken filaments. Fabrionics Corp.

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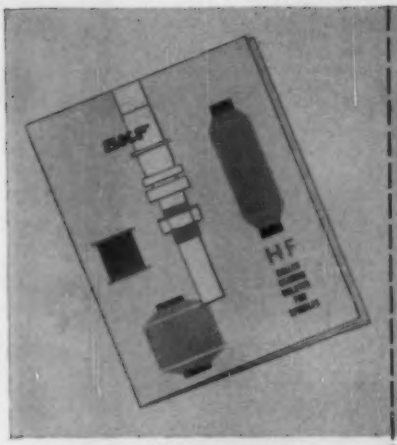
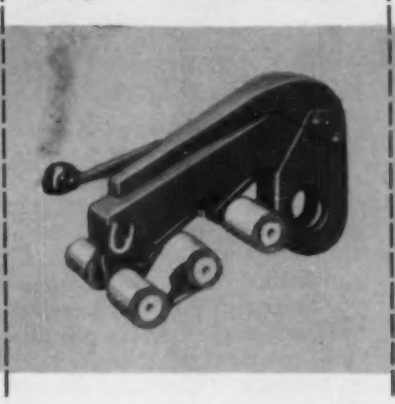


NEW SKF ROLLER BEARING BOLSTERS offer smooth acceleration, vibration-free operation and precision plumbing. Two models available—Type HF for heavy package, high-speed spinning, Type HZ for heavy-duty twister spindles.

NEW PK SERIES PENDULUM WEIGHTING ARM for spinning cotton, synthetic, woolen and worsted yarns under today's heavy drafting pressures. SKF-developed feature provides automatic alignment throughout drafting.

NEW DRAFTRITE® ROLLER BEARING TOP ROLL assures evenness of yarns, under heavy drafting pressures, and reduces chance of ends down. Two types available—one for lateral guidance, one for center suspension drafting. 6028



SKF backs up its new textile specialties with complete product data

What's the maximum permissible load for the new Draftrite top rolls? Can the new PK pendulum weighting arms be loaded and unloaded individually? What's the recommended break-in period for those new HF and HZ roller bearing bolsters?

To answer these questions—and many others—SKF offers a comprehensive booklet on each of its new textile specialties.

These data books are complete. Each contains facts and figures, photos and diagrams of the product's design, features, installation and maintenance.

References like these are indispensable when you're considering new equipment, modernizing machinery or simply replacing worn-out parts. Because with them, you can go right ahead with your plans —with all the pertinent facts on hand. Of course, an SKF textile specialist is always available for consultation.

To get copies of these valuable time-savers, just

CALL OR WRITE SKF TEXTILE SALES OFFICE

Front Street and Erie Avenue
Philadelphia 32, Pa.
GArfield 6-9620

2935 South Griffith St.
P.O. Box 3031, Charlotte 3, N. C.
JAckson 3-6232

P.S. Ask, too, for complete data on SKF Type "SR" Tension Pulleys. They eliminate tape jump-offs, ensure uniform spindle speeds and permanent pulley adjustments. And they only need re-greasing after 20,000 working hours—about once every 3 to 5 years!

Spherical, Cylindrical, Ball, Tapered and RIMS Miniature Bearings

EVERY TYPE—EVERY USE
SKF
SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.

You can change a complete set of clamps on a Scott Tester...in a matter of seconds!

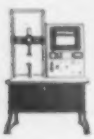
Here's how:

2 sec.
Locking pin out — top clamp off.

4 sec.
New clamp in position — pin replaced.

6 sec.
Locking pin out — bottom clamp off.

8 sec.
New clamp on — pin replaced — locking collar tightened. That's all — start testing!



With Scott's new quick-change clamp assembly, you speed up your test operations and get more tests per day. This is another reason why Scott Model CRE Constant-Rate-of-Extension Tester makes good sense and good savings in the laboratory or in production.

WRITE FOR CRE BROCHURE

Scott Clamps and Holding Fixtures are equally useful and time-saving on other Scott Tensile Testers. Ask for details.

SCOTT TESTERS

THE SURE TEST...SCOTT!

SCOTT TESTERS, INC.
95 BLACKSTONE ST.
PROVIDENCE, R. I.

Equipment & Supply News

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

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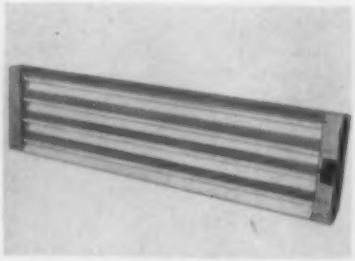
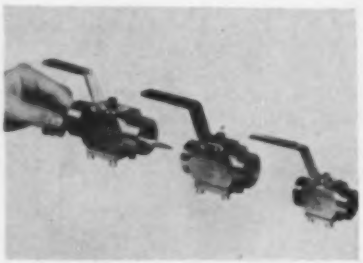
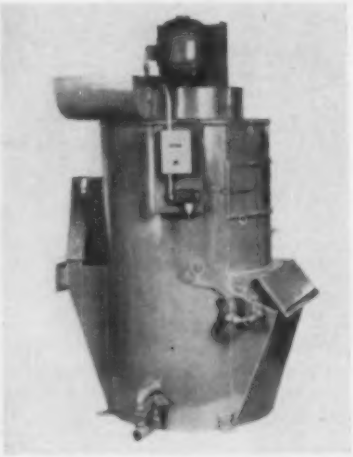
E-30—Laboratory glassware now permanently identified with AEC symbol: Caution — Radioactive Material. This positive marking reduces radiation hazards. It is particularly important in the washing of glassware to prevent human error. Fisher & Porter Co.



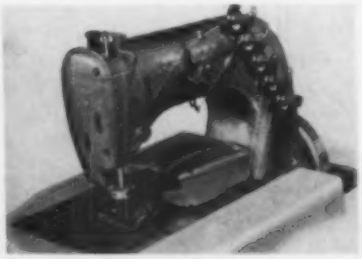
E-31—Radiant-heating panel comes with one to four quartz elements. Temperature range is up to 1700 F. Unit comes in 2- to 6-ft. lengths, and 4- to 12-in. widths. The aluminum reflectors are backed with 2-in. insulation. Panel end has stand-off connectors of stainless-steel studs and nuts. Unit has thermo-shock resistance to vibration, acid, or corrosion. Cleveland Process Corp.



E-32—Instrument valve features Teflon sleeve for maximum corrosion resistance. Rated for 300 lb. ASA service, it comes in sizes from ¼ inch through 1 inch. The valve can be used with temperatures ranging from —50 to 400 F. All moving parts are supported by low-friction Teflon so that lubrication is not required. It is available in Type 303 or Type 316 stainless steel. Continental Mfg. Co.



E-33—Dust collector, called Uni-Wash, has no moving parts. The compact unit will remove dirt, dust, grindings, chips, fumes, and vapor from the air. The unit has no pumps or agitators. It uses a principle of washing, scrubbing and fogging contaminants out of the air stream and deposits them as a wet sludge. The sludge can be removed automaticaly or manually as desired. Devilbiss Co.

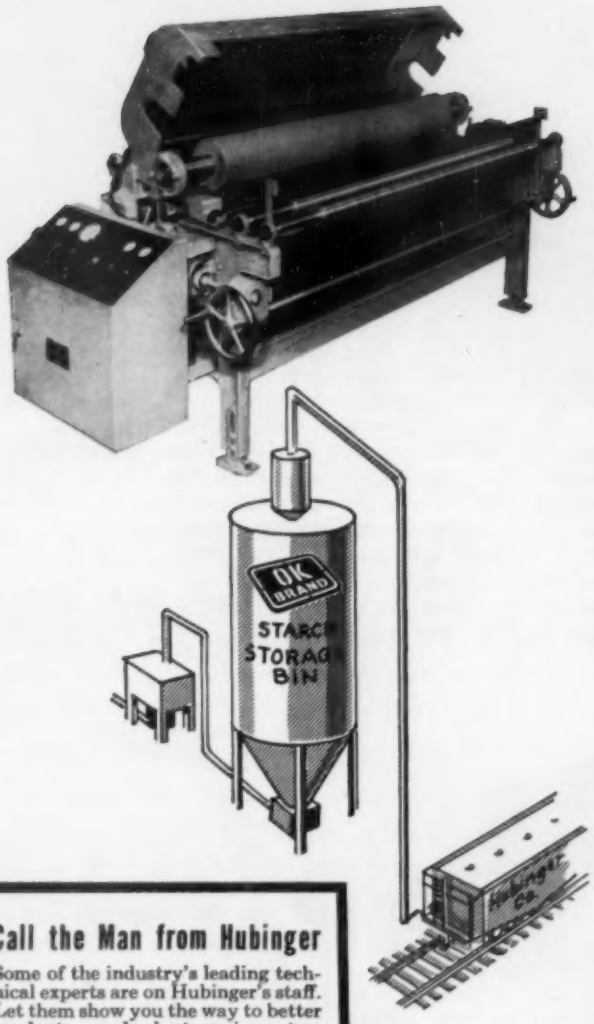


E-34—Sewing machine produces two independent rows of stitching simultaneously. Called Safety-Stitch, it is a two-needle, four-thread machine. The left-hand needle produces a single-row, Type 401 double-lock stitch. At the same time, to the right, the machine trims and finishes the edge with a two-thread overseaming stitch Type 503. It operates at speeds up to 5,000 stitches per minute and can be used for single-needle seaming. A throw-out looper mechanism eliminates removing the looper. Union Special Machine Co.

. . . *Turn to page* 152

What you should know about STARCH*

YOU PROBABLY KNOW—BUT OTHERS MAY NOT



Q. How does sizing affect the breaking strength of yarns?

A. A correctly sized warp will show an increase in breaking strength of 25% to 30% and sometimes much greater.

Q. What is size migration?

A. Size migration is the transfer of size from one yarn sheet to another on the drying cans of the slasher. This occurs when two yarn sheets are sized in separate boxes and then are brought together on the drying section. The largest migration takes place on the first drying cylinder contacted.

When slashing a high count warp through two size boxes and bringing the two sheets together on the first cylinder, some size migration will always occur. All of the ends from one sheet will be in direct contact with the drying surface. Some ends from the other sheet will lie on top of ends from the other sheet. Ends next to the cylinder will dry first. Moisture (steam) from these ends pass up and through the other ends retarding drying of these particular ends. Consequently, the moist or undried size sticks or adheres to the partially dried size on the ends next to the drying surface.

Desize analysis of the separate sheets of yarn will often show a difference of as much as 3% to 4% size. The method used to prevent or reduce size migration is to run the sheets from the size boxes to separate drying cans. Then the partially dried warp sheets are brought together on the third cylinder.

Q. WHAT ARE THE BEST STARCHES AVAILABLE FOR SIZING COTTON AND SPUN SYNTHETIC WARPS?

A. OK BRAND STARCHES, of course, manufactured by THE HUBINGER COMPANY.

Call the Man from Hubinger

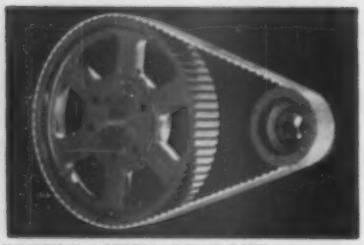
Some of the industry's leading technical experts are on Hubinger's staff. Let them show you the way to better products—and plant savings, too. The Hubinger representative will be pleased to place these experts at your service.

One of a series of articles. Write for the complete set and for our continuing technical data service, without obligation to:

THE HUBINGER COMPANY

601 Main Street • KEOKUK, IOWA

WOOD'S POWER TRANSMISSION PRODUCT NEWS



POSITIVE ACTION—LONG LIFE

Wood's Timing Belt Drives provide positive, slip-free action. Belts are all muscle. No high initial tension, tension devices or lubrication needed. Drives are light weight, compact . . . quiet and clean. Wide load and speed range. Equipped with famous Sure-Grip Bushings. Write for Bulletin 2100.

CIRCLE 252 ON READER SERVICE CARD

HIGH PERFORMANCE VARIABLE

Wood's stationary control, "VPS" Variable Speed Drives won't freeze or stick. No lubrication is needed. Speed changes are made accurately and quickly by turning an adjusting screw from either side. Initial, operating and maintenance costs are lower. Write for Bulletin 1100.

CIRCLE 253 ON READER SERVICE CARD

REVOLUTIONARY NEW VARIABLE

Revolutionary resilient cam follower construction of Wood's new "MCS" motion control, variable speed drives holds constant driven speeds under varying torque loads. Like the "MS," the "MCS" won't freeze or stick. Check oil only once or twice a year. Write for Bulletins 8102, 4101.

CIRCLE 254 ON READER SERVICE CARD

MPT/3608

Woods

T. B. WOOD'S SONS COMPANY

CHAMBERSBURG, PENNSYLVANIA

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Equipment & Supply News

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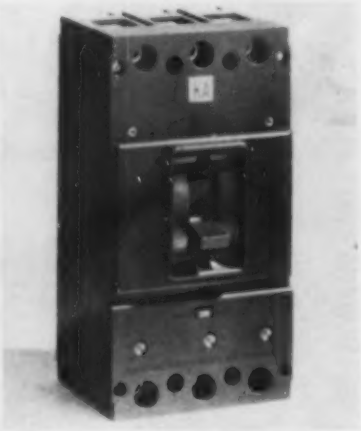
For more information on any of these items, circle appropriate number on the Reader Service Card, next to the back cover.

E-35—Plastic clamp, loop type, made of lightweight polypropylene. It is available in seven sizes from ⅛ to ½ inches. The clamp possesses high tensile strength and excellent dielectric properties. It is resistant to solvents, oil, and common chemicals. Holb Industries, Inc.

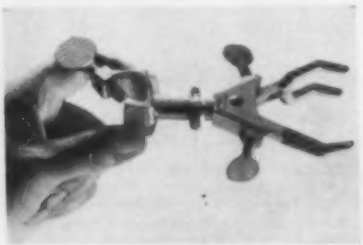
E-36—Small-parts cabinet is designed with adjustable compartments for parts such as screws, bolts, and springs. The three drawers are subdivided into five, 3x11-in. compartments, which in turn are adjustable in 1-in. increments by cross dividers. Each drawer and each cross divider has a label holder for index cards. The all-steel cabinet is 16¾ x8¾ x11¼. Bay Products, Inc.

E-37—Gas-fired, infra-red burner is designed for maximum radiation intensity at minimum fuel input. Face temperature of 4x18-in. burner is 1,200 to 1,800 F. Unit has a built-in flame adjustment so that heat pattern can be controlled across an entire process. Cast-iron manifold is finned for air-cooling. Units can be assembled in continuous lines up to 100 feet long. Bryant Industrial Products Corp.



E-38—Circuit breaker is designed to handle aluminum or copper cable. Three-pole breaker is available in six sizes, which conform to NEMA standards. Maximum current ratings are from 10 to 800 amperes with interrupting capacities from 5,000 to 50,000 amperes. Five units are rated up to 600 volts, one is rated at 240-277 volts. Front adjustable magnetic trip also available. Westinghouse Electric Corp.

E-39—Check valves incorporate porcelain body, procelain cone or alumina ball check and Teflon seat for maximum corrosion resistance. It is available in ½- to 3-in. sizes rated for up to 150 psig. Process Equipment Div., Lapp Insulator Co.



E-40—Laboratory clamp, called Castaloy-R, is redesigned with a three-finger grip. The unit also has a 45° thumb-screw collar. It can handle objects ranging from $\frac{1}{8}$ to 3½ inches in diameter. The jaws are coated for nonskid cushioning. Fisher Scientific Co.

. . . *Turn to page* 154

"Sure-Flex" Coupling's unique design, 4-way flex are . . .

A "SURE CURE" FOR SHOCK, VIBRATION, SHAFT MISALIGNMENT

Unique design and 4-way flexing action enable Wood's "Sure-Flex" Couplings not only to absorb all types and combinations of angular and parallel misalignment and end-float . . . but from 5 to 15 times more shock and vibration than other leading flexible couplings. There are only four basic parts which lock together without clamps or screws, tightening securely under torque to provide smooth, dependable power transmission. There is no metal-to-metal contact, no wear, no need for lubrication or maintenance. "Sure-Flex" Couplings are easily installed, unaffected by abrasives, dirt or moisture. Operation is noiseless. Get all of the facts. *Write for Bulletin 5103.*

Wood's

T. B. WOOD'S SONS COMPANY • CHAMBERSBURG, PENNSYLVANIA

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CIRCLE 153 ON READER SERVICE CARD 153

next day delivery?

OK

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Delta

Air Freight

Wherever you are in the U. S. A., you can count on next day delivery via Delta Air Freight, now bringing you

the big plus

Delta operates all-cargo flights and in addition carries freight on every passenger flight, including Jets.
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GENERAL OFFICES: ATLANTA AIRPORT, ATLANTA, GA.

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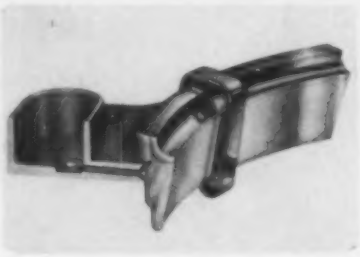
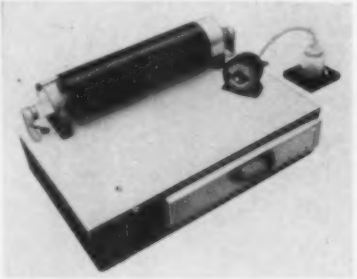


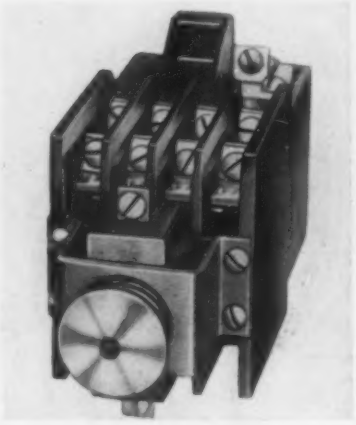
E-41—Conical ring has unique, effective method for lubricating the path of the traveler. Bearing surface of the ring is designed in two parts to that a seam occurs on these surfaces. Oil from the reservoir passes through these seams by capillary action providing lubrication between the ring and traveler. Less oil is used, and cleaner yarn is maintained during high-speed operations. Herr Mfg. Co.

E-42 — Solenoid release brake, style H-44, is constructed with a drip-proof enclosure. This spring-set unit has a torque rating of three foot pounds. It is available for a.c. or d.c. The unit is suitable for hoists and weighing devices. Stearns Electric Corp.



E-43—Duplicating machine, operating by a dry-process method, reproduces anything translucent, such as letters, drawings, charts, and reports. Copies are made direct from the original in any size up to 11x17. Reproductions are possible in color. The entire operation is done in normal daylight. The unit measures 20x10x9, weights 15 pounds, and operates on 110-v. a.c. Copymaker Co.

E-44—Nip-and-crown check for rubber-covered rolls is called Nip Width Tester. Unit consists of six-in.-wide rolls of aluminum foil. The foil is specially designed and embossed with the exact thickness maintained throughout the roll. Its sensitivity provides a sharp clear impression. Measurements can be taken to within one hundredth of an inch. Stowe-Woodward Inc.



E-45—Industrial control relay designed for compactness and dependability. Known as Compact 300, it is rated at 6-amps., 300-v. maximum. The unit is a fixed circuit device with provisions for 8 poles. It is also available in 2-, 3-, 4-, or 6-poles in any combination of normally open or normally closed contacts. The panel space required for 2 to 8 poles is 5½ square inches. Cutler-Hammer.

E-46 — Pressure-control alarm, Type J7X-5355, is designed for alarm circuit in sprinkler systems. Unit is adaptable to alarm check valves, dry-pipe valves, and special water controls providing an alarm when the valve operates. Pressure settings are adjustable from 0 to 20 psi. Proof pressure is 300 psi. Switches are single-pole rated at 15 amps., 120/240-v. a.c. United Electric Control Co.

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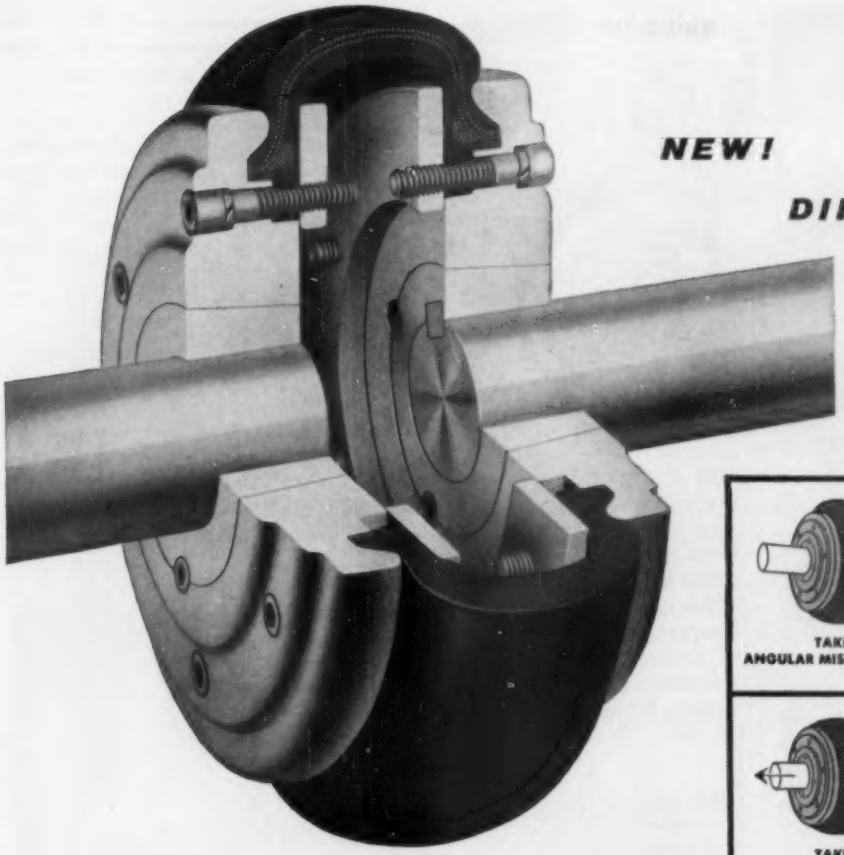
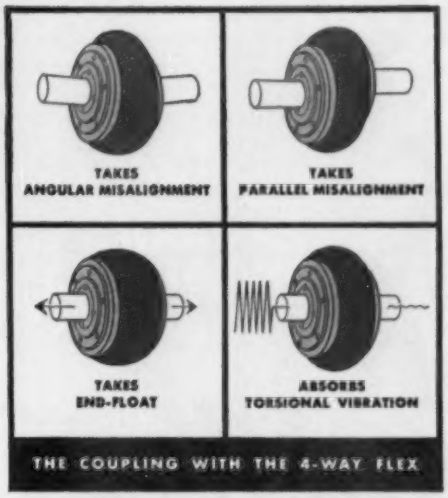


NEW!

DIFFERENT!



DODGE

Para•flex

FLEXIBLE CUSHION COUPLING

THIS coupling "swallows up" shaft misplacements. It automatically compensates for end-float, parallel misalignment, angular misalignment *or any combination of all three.* Moreover, it cushions the stresses of shock loads. And it absorbs torsional vibration—reducing noise and protecting machinery from vibration's destructive forces.

Here is a new type of performance—made possible by the development of a tire-like flexing element. Synthetic tension members, bonded together in rubber, give this element the stamina and dependability of modern, high-speed, high-load, shock-absorbing truck tires—and the ability to respond magically to all manner of changing shaft conditions.

Para-flex takes minimum space on the shaft. Mounting is simplified through the use of standard Taper-Lock bushings—no reboring, no machining. Safety is promoted by flush design; there are no protruding parts. No lubrication is required, no periodic inspection. And since the flexible member is molded with a transverse split, it can be replaced *without moving either the driver or driven machine.*

Para-flex Couplings are stocked by Dodge Distributors in popular transmission sizes. They are available from factory stock in capacities up to 2000 hp at 1080 rpm. Call your distributor for a coupling to *make your own test.* You'll witness something revolutionary!

DODGE MANUFACTURING CORPORATION, 1400 Union, Mishawaka, Ind.

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER — your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look under "Dodge Transmissioneer" in the *white* pages of your telephone directory, or in the yellow pages under "Power Transmission Machinery."

CIRCLE 155 ON READER SERVICE CARD 155

100% DEFECT DETECTION

BEAM AFTER BEAM AFTER BEAM

with the NEW

FABRIONICS MARK II WARP YARN MONITOR

Now you can warp top quality wool, cotton, and synthetic yarns at top speed beam after beam, shift after shift, knowing that your Fabrionics Mark II Warp Yarn Monitor is detecting and counting all the yarn defects at the end of the week just as it did at the beginning. The new Fabrionics Mark II Warp Yarn Monitor not only detects and counts objectionable defects but stops the warper so they can be removed. And—the Mark II compensates instantly and automatically for changes in operating conditions and maintains constant sensitivity without daily or weekly resetting.

EXTRA AMPLIFICATION

An additional, second stage amplifier can readily be incorporated in the Mark II system to permit the counting of non-objectionable defects for quality control recording and analysis.

DETECTION OF LENGTH DEFECTS

Fabrionics engineering makes the Mark II invaluable for spun yarn as well as filament yarn inspection. The Detect-All, an easily connected accessory, makes it possible for your Warp Yarn Monitor to detect and count defects of a pre-selected length in addition to defects in diameter.

Fabrionics

WRITE for full information on the NEW FABRIONICS MARK II WARP YARN MONITOR

FABRIONICS CORPORATION
Box 521 · Huntington, L.I., N.Y.

Equipment & Supply News

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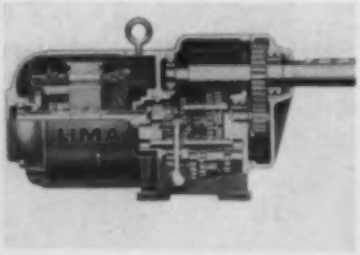


E-47—Gearshift drive, Type R3C, is redesigned to handle heavier loads at lower shaft speed. Shift handle, which operates four gear speeds, can be located at four optional positions. Compact design of the transmission and motor minimizes mounting space. Unit is available in 1 to 5 hp., operates on polyphase a.c. power supply (at voltages below 600), and at 25-, 50-, or 60-cycles. Lima Electric Motor Co.

E-48—Glassware washer, called Fisher Standard, is designed for small laboratories. Stainless-steel baskets accommodate a wide variety of labware. The rotating drum carries four baskets of glassware in and out of the hot-water solution for maximum washing action. Two models are available—steam-heated and electrically heated. Units operate on 115-volt, 60-cycle a.c., but the electrically heated unit requires 230 volts for the heater. The washer is 36 inches high, 35 inches wide, and 22 inches front to back. Fisher Scientific Co.

E-49—Adjustable-speed drive provides exact synchronism of speed for a group of d.c. motors. The drives range in size from 2 to 15 horsepower. The unit consists of an adjustable frequency power supply, one or more Syncro-Speed drive motors, and a control panel. Exact synchronism of all motors is maintained at fixed speed or while increasing or decreasing speed. The Syncro-Range Drive is adaptable for textile printing or finishing, drawing or twisting, and man-made-fiber spinning. Louis Allis Co.

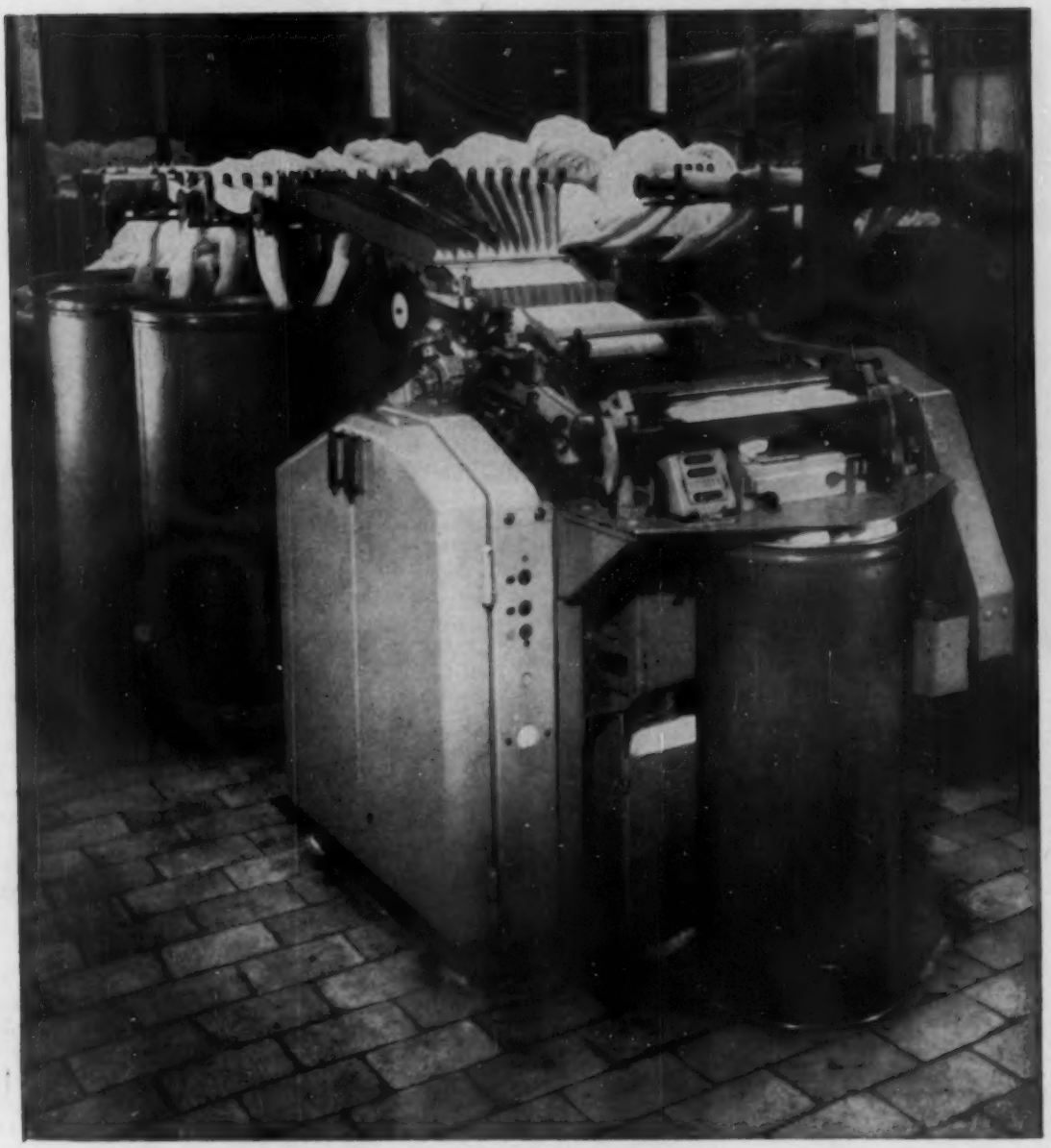
E-50—Rotating microscope stage uses angled first-surface mirror to permit top-and-side examination of small objects without touching them. Designed for low-power microscopes, it is used for production line inspections or laboratory work. Objects are rotated by moving the center platform. It is constructed of metal and plastic for the moving parts. Unit measures 2x2x2. Edmund Scientific Co.

E-51—Universal hoist incorporates a positive antifouling mechanism. The unit is compact and lightweight. It makes use of a 115/200-volt a.c., 3-phase, 400-cycle motor. It is capable of raising 1,400 pounds at a minimum speed of 15 feet per minute. AiResearch Mfg. Co.

WORLD FAMOUS

SCHLUMBERGER COMB

for French-Type Worsted Mills



OUTSTANDING for ready accessibility of all operating parts (including cylindrical comb) and for remarkable cleanliness of product. Settings made quickly.

Also other worsted preparatory machinery

N. SCHLUMBERGER & CIE GUEBWILLER, ALSACE, FRANCE
Founded 1808

CIRCLE 157 ON READER SERVICE CARD 157

SEAMLESS!
SNAG-FREE!

Seamless CDF Diamond Fibre Roving Cans won't snag delicate yarns. Their interior surfaces are porcelain-smooth and they retain this smoothness year after year.

Made from Diamond vulcanized fibre, CDF Roving Cans are durable and strong. They won't dent, crack, or splinter. The superior CDF craftsmanship that goes into their manufacture assures you that these containers will last — even under the most severe conditions.

CDF also makes loom parts, gears, trucks, and mill boxes for the textile field from its vulcanized fibre, laminated plastic and Celoron molding materials. It may pay you to talk to your CDF sales representative the next time he calls. If you prefer, write directly to us for information.

CONTINENTAL-DIAMOND FIBRE
A Subsidiary of The Bakelite Company • Newark 55, Del.
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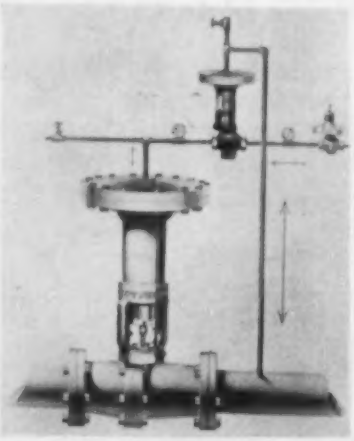


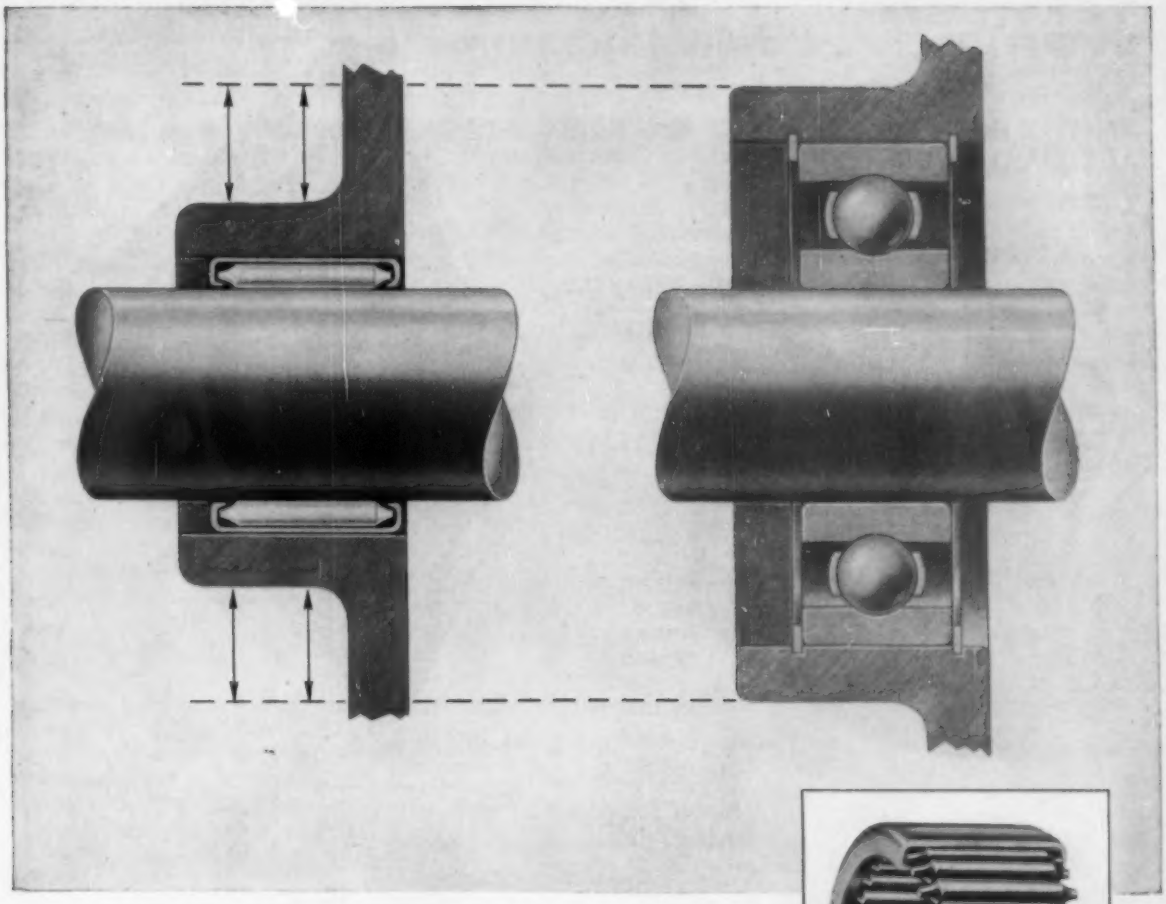
E-52—Pressure-reducing valve has capacity of 50,000 pounds of steam per hour or 2,500 gallons of water per minute. The unit is suitable for pressures to 250 psi. and temperatures to 500 F. The valves is air operated and features sliding gate and plate seats (which are self-cleaning and self-lapping for tight shut-off and minimum maintenance). It is available in 4-in. and 6-in. sizes. OPW-Jordan Corp.

E-53—Temperature indicator is battery powered, portable, and weighs only two pounds. The unit has thermistor sensing probes. Its batteries have an estimated life of several thousand hours. The unit is available in ten different ranges, spanning —30 to 350 F. The unit uses interchangeable probes for air, liquid, and surface temperature sensing. The unit is used for process control, equipment checks, and for surveying plant thermal conditions for air conditioning or safety purposes. Fenwal, Inc.

E-54 — Pourable cement, called Evr-Tite, is odorless, vibration-resistant, and self-leveling. It's used for setting anchor bolts, pipe flanges, and partitions with absolutely no shrinkage. It produces a hard, tough surface in just a few hours. Monroe Co., Inc.

E-55—Electric car, named Birdie, accommodates one man and his equipment. It is designed for in-plant transportation. The unit weighs 181 pounds, is 35 inches wide, and is equipped with one battery. It operates at speeds up to 4½ mph. The battery powers the car for 10 miles. The car contains its own charger, which can be charged overnight from any 110-v. outlet. Keyes, Martin & Co.

E-56—A computer system has been developed for businesses now using punched-card equipment. The four units that comprise Univac Step are a central processor with 26,000 digit capacity, high-speed reader that handles 450 cards per minute, punch unit that handles 150 cards per minute, and a high-speed printer. System can be used for payroll, billing, inventory control, sales analysis, and reports. It can be expanded as needed by adding four additional memory units and a multiply and divide unit. Remington Rand, Div. of Sperry Rand Corp.

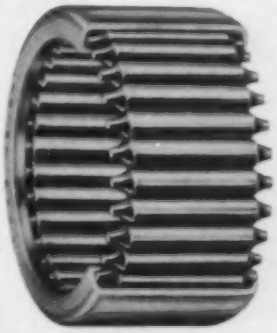


Designed for Compactness... Torrington Needle Bearings

Simpler, more compact design is possible wherever Torrington Needle Bearings are put to work in eliminating friction problems.

These outstanding bearings offer a higher radial load capacity than any other bearing of comparable size. They are more compact, lighter in weight, and are lower in unit cost. The full complement of small-diameter precision rollers insures exceptional antifriction performance and long, maintenance-free service life. The turned-in lips on the outer shell guarantee positive roller retention. Installation and assembly are fast, simple, economical.

The unmatched design and production advantages of Torrington Needle Bearings have been proved in applications ranging from office machines to automobiles, washing machines to earth-moving machinery. Give *your* product the benefit of our antifriction know-how. Write or call Torrington—maker of every basic type of antifriction bearing.



TORRINGTON NEEDLE BEARINGS FEATURE:

- Full complement of retained rollers
- Unequalled radial load capacity
- Low coefficient of starting and running friction
- Low unit cost
- Long service life
- Compactness and light weight
- Run directly on hardened shafts
- Permit use of larger and stiffer shafts

progress through precision **TORRINGTON BEARINGS**

THE TORRINGTON COMPANY Torrington, Conn. • South Bend 21, Indiana

TEXTILE WORLD . . . New Literature

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

TEXTILE MACHINERY AND AUXILIARY EQUIPMENT

L-1—Padding operations are described and illustrated in 2-p. color brochure, Bulletin 452. Drawings show optimum roll arrangements; tables list pressure, shaft speed, and power specifications. Proctor & Schwartz, Inc.

L-2—Drive selection and installation instructions are given in 24-p. catalog SW-1. Includes horsepower ratings, drive-selection tables, and sheave-dimension tables. Also gives advice on belts, sheaves, and bushings. Maurey Mfg. Corp.

L-3—Radiant, infrared heaters for drying, baking, and heating are described in 14-p. booklet. Shows tubular and panel types with drawings, charted operational information and photographs of actual installations. Corning Glass Works.

L-4—Storage racks that employ roller tracks as shelves to facilitate moving of materials are the subject of an 8-p. brochure. Drawings show alternative track systems and photographs depict plant applications. Rapids-Standard Co.

L-5—Combination light and air diffusers and the history of their development are covered in a highly illustrated 24-p. booklet. Sketches show approaches to diffusion problem; charts give statistics on glare, air motion. Barber-Colman Co.

L-6—Reduction of wool shrinkage by the application of an epoxy/aminopolyamide resin finish is explained in a 4-p. government letter. Gives directions for formulation of the finish, and treatment of fabric. U. S. Dept. of Agriculture.

L-7—Metalizing process for the rebuilding of worn mechanical parts in every phase of a textile operation is outlined in 4-p. leaflet. Gives complete time and cost figures for specific equipment. Metallizing Engineering Co., Inc.

L-8—Selection of timing belt drives is simplified and systematized in new 8-p. Bulletin 21103. Includes five sets of curves for drive-width selection and sample problem for applying the system. T. B. Wood's Sons Co.

L-9—Portable, electric cleaners for blowing, vacuuming and spraying operations are described in 4-p. brochure. Lists specifications for five models and has pictures of 35 attachments. Ace-Sycamore, Inc.

L-10—Variable speed drives, with accompanying precalculated drive tables and engineering data, are enumerated in a 24-p. technical bulletin. Photographs and engineering drawings appear with sheave-specification charts. Browning Mfg. Co.

Robert E. Pomeranz
President, Roberts Company
Sanford, North Carolina
Mfrs. of Textile Machinery

"Sales of Roberts ARROW Spinning Frames for 1960 should be 50% over 1959, which jumped 60% over 1958. Growth needs increasing funds so that customers can be adequately served. In Textile Banking Company, we have found a policy that is simple and realistic. Its management has an unlimited desire to accommodate itself to our needs and those of our customers."

* * *

TBC credit and financial services are available in many fields of industry. They are most effective for manufacturers with annual sales of $500,000 and over. A TBC officer will give prompt attention to any inquiry.

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SUBSIDIARIES:
T. B. C. Associates, Inc., New York
Southwest Texbanc, Inc., St. Louis
Pacific Texbanc, Inc., Los Angeles

TBC

CHEMICALS & SUPPLIES

L-11—ABC's of Defoaming explains principles of combatting excessive foam and lists products which will do the job in 8-p. manual. Gives specific applications to industry, including textiles. Includes measuring chart. Dow Corning Corp.

L-12—Surface-active agents' applications to wetting, dispersing, penetrating and cleaning processes are outlined in illustrated booklet. Lists characteristics of specific surfactants. National Aniline Div., Allied Chemical Corp.

L-13—Chemical Product Directory gives descriptions, physical properties and possible applications of hundreds of chemicals in 12-p. catalog. Contains rubber, coatings, plastics, adhesives, polyester sections. Goodyear Chemical Div.

L-14—Floor-finishing products list has been revised to include penetrating sealer and Bakelite-varnish finishers. Recommends types for textile mills and reports test results on new products. Maple Flooring Mfg. Association.

L-15 — Condensation-prevention procedure is outlined in 4-p. leaflet along with chart comparing anticondensation properties of various paints. Explains application technique and lists uses. Chemical Concentrates.

L-16—Demineralizer catalog lists line of mixed-bed, two-bed, and four-bed demineralizers. Catalog No. 160, 36-p., illustrates series with charts, specifications, drawings, and on-job installation photos. Barnstead Still & Sterilizer Co.

L-17—Alginates, a 36-p. booklet, describes the chemical in soluble and insoluble form and its thickening, colloidal and film-forming properties. Gives formulations and uses for textiles in sizing, finishing, and dyeing. Ed. Mendell Co., Inc.

L-18—Chemical digest, a 16-p. catalog, gives short descriptions, physical data, chemical formulas, uses, and shipping specifications for 94 chemicals. Includes 20 new or recently developed products. Hooker Chemical Corp.

L-19—Silicones and their many industrial uses are enumerated in an 8-p. manual, 1-119. Describes applications—with photographs—as foamers and antifoamers, as lubricants, insulators, and filters. Dow Corning Corp.

ENGINEERING

L-20—Electric-motor idea book contains construction, dimensions, and price data on fractional, integral horsepower motors. Places emphasis on special designs available to meet unusual problems; 14 pages. Doerr Electric Corp.

L-21—Materials-handling ideas and devices are compiled in 44-p. booklet liberally illustrated with photographs and drawings. Movement, transfer, and control sections list belts, rollers, storage racks, and special tools. Rapids-Standard Co.

. . . Turn the page

Build your FLUIDICS* library

High-capacity water softening: New Permutit® Model BD Softeners answer industry's needs for more soft water at lower cost. Full details on operation, specifications and performance are in **Bulletin 4696.**

How FLUIDICS works for you: Buyer's Guide surveys equipment for water and waste treatment, ion exchange, gas analysis, metering and control. Also equipment for handling corrosives, heat transfer, reactions, centrifuging and packaging. Send for **Bulletin 992.**

Standard packaged demineralizers: Factory-assembled, systems ready to connect and operate. For summary of applications, plus data on mixed-bed, two-step, non-regenerable and skid-mounted units, send for **Bulletin 4721.**

Automatic valveless gravity filter: Costs up to 45% less than conventional filters. Also saves money after installation, because it operates automatically without a single valve, agitator, pump, flow controller, or an attendant operator. **Bulletin 4351.**

Treating industrial wastes: Bulletin 4486 discusses types of industrial waste problems, equipment used, typical waste treatment systems.

Ion exchangers: From Permutit – the only company to manufacture ion exchange resins and the equipment in which they are used – you can get a brief manual on use of ion exchange as a unit process for purification, recovery, addition, separation, concentration. **Bulletin 2508** also covers Permutit resins and equipment.

Water treatment chemicals: Permutit offers an extensive line of specialized chemicals. Typical data available: **Bulletin CS-105** on Wisprofloc-20 Coagulant Aid, **Bulletin CS-111** on Neutralizing Amines, **Bulletin CS-110,** the Briquet System.

Permutit® Precipitator: Saves about 50% in ground space, 50%-75% in time of treatment, and 10%-40% in certain chemicals and adsorbents, compared to conventional reaction and settling tank. Complete facts on operation and applications, **Bulletin 2204C.**

*FLUIDICS is the Pfaudler Permutit program that integrates knowledge, equipment and experience in solving problems involving fluids.

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Permutit Division, Dept. TW-100
50 West 44th Street, New York 36, N. Y.
Please send me the following bulletins:

- ☐ 4696 Permutit BD Model Softener
- ☐ 4721 Permutit Packaged Demineralizers
- ☐ 4351 Permutit Automatic Valveless Gravity Filter
- ☐ 2508 Permutit Ion Exchangers
- ☐ 2204C Permutit® Precipitator
- ☐ CS-105 Permutit Wisprofloc-20 Coagulant Aid
- ☐ CS-111 Permutit Neutralizing Amines
- ☐ CS-110 Permutit Briquet System
- ☐ 992 FLUIDICS Buyer's Guide
- ☐ 4486 Equipment for Treating Industrial Wastes

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PFAUDLER PERMUTIT INC.
Specialists in FLUIDICS . . . the science of fluid processes

By guarding your processing line against wrinkling, the Kay Slat Expander:

1. Allows faster, more efficient machine operation
2. Reduces losses through rejection
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Supplied with wooden slats for use at room temp. and aluminum for use in ovens, to 550°.

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INVERSAND WATER SOFTENER PLANT
producing
CLEAR IRON-FREE 100% SOFT WATER
Often For As Little As 1¢ per 1000 Gallons

Troubled with harshness, poor finish, uneven shades, redyes, seconds, and other product difficulties—?? The secret of uniformity may lie in your water supply. May we check it for you?

HUNGERFORD & TERRY, INC.
Clayton 9 New Jersey

NEW LITERATURE

. . . *Begins on page* 160

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

L-22—Plastic pipe's characteristics and applications are reviewed in a 2-p. folder, with photographs showing installations. Lists industries already using resin and flexible polyethylene pipe. Republic Steel Corp.

L-23—Temperature-regulator catalog lists equipment for use on steam, water, air, oil, gas, or chemicals. Photos, cut-sections, and line drawings illustrate 8-p. booklet. Describes accessory items. OPW-Jordan Corp.

L-24—Sewage handling for small plants (up to 150 people) is discussed in 8-p. brochure, bulletin 7315. Sections include operation and maintenance of the unit with engineering drawings and photos of installation. Dorr-Oliver, Inc.

L-25—Electric-motor control pocket catalog contains 56 pages of information on magnetic starters; drum controllers; pressure, foot, and limit switches; and pilot devices. Contains descriptions, ratings, and prices. Furnas Electric Co.

L-26—Air and hydraulic power cylinders are catalogued in 4-p. bulletin, with figures on strokes, prices, and dimensions. Drawings and photographs illustrate brochure. Describes related parts. Miller Fluid Power Div. Flick-Reedy Corp.

L-27—Speed variators applicable to machine feeds, spindles, and other textile equipment are described in 8-p. booklet, Bulletin GEA 7019. Includes photos, cut-away drawings, and notes on modifications, standard features. General Electric.

L-28 — Industrial water-treating equipment of many types is described in 30-p. digest with photographs of installations. Industry-authored articles cover applications to specific water problems. Minneapolis-Honeywell Regulator Co.

L-29—Socket head cap screws of a new type are introduced in a 12-sided foldout, with comparison to old models. Includes figures on thread lengths and cap sizes. Pictures of complete line of socket-type and standard screws. Standard Screw Co.

L-30—Magnetic-liquid level gages, for use where glass cannot be tolerated, are explained in principle and practice in 6-p. folder. Photos and drawings illustrate standard models and several optional features. Jefferson Gage & Valve Co.

L-31—Remote control of circuit breakers, types E, EH, F, and HF, is the subject of a 4-p. brochure, Booklet B-7534. Suggests possible uses with drawings and includes schematic of mechanism in operation. Westinghouse Electric Corp.

GENERAL

L-32—Precision sample cutter and check weights are introduced as companion items to tearing tester in 2-p. leaflet. Describes uses, virtues, and construction of items with pictures. Bulletin 211-ELM. Thwing-Albert Instrument Co.

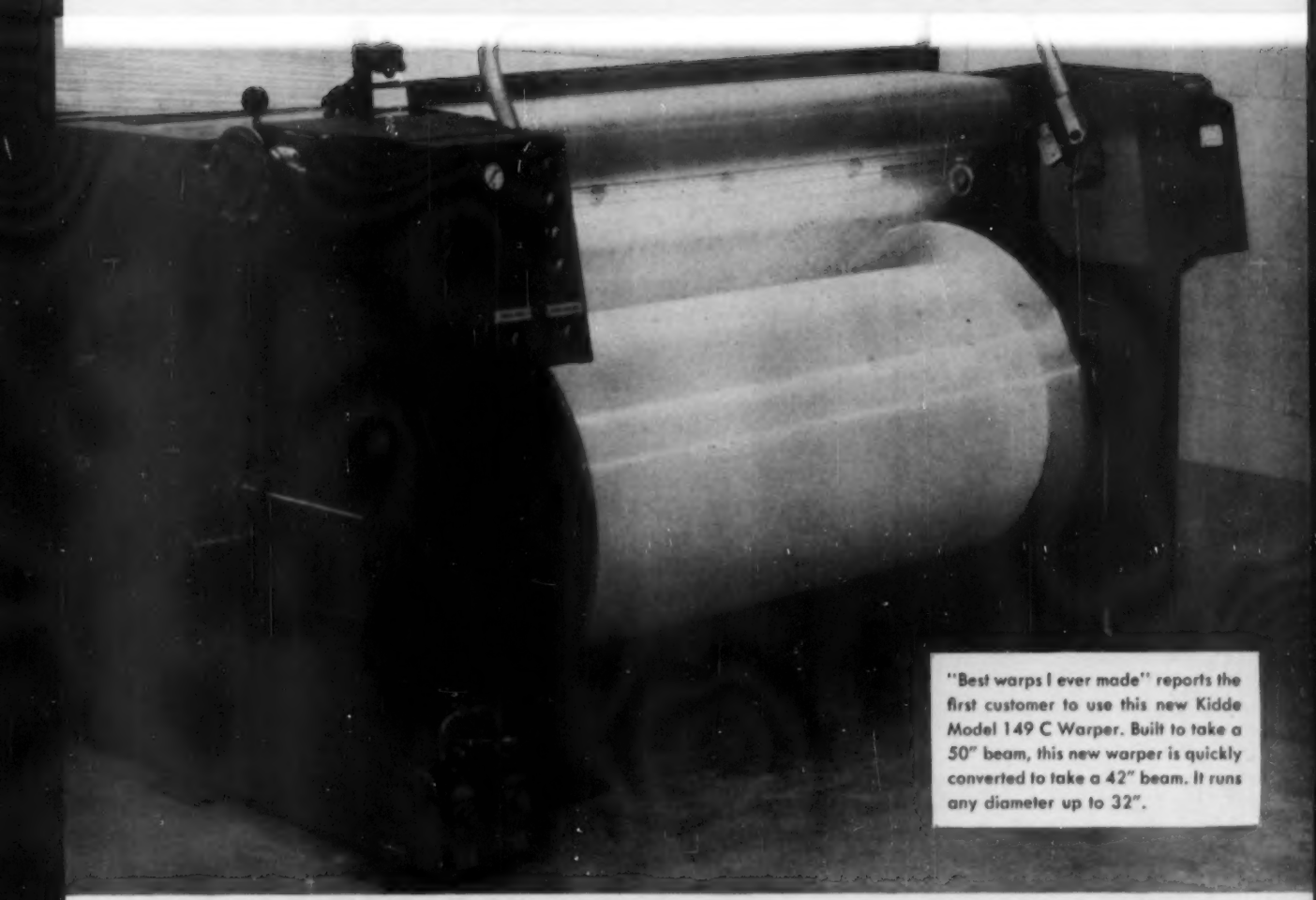
L-33—Combustion deposit control and the dangers of failing to meet the problem are illustrated in 4-p. brochure. Lists problems caused by deposits and suggests remedies. Cites examples of control. Polyphase Chemical Service Inc.

L-34—Packaging suggestions for casual stocking and tights fill a new folder, along with samples, specifications, prices, and ordering information. Emphasis is on color and design. Also shows stock imprints. Lassiter Corp.

L-35—Heating equipment catalog contains 12-p. of technical details, dimensions, and capacity data on steam traps, temperature regulators, and pipeline strainers. Includes drawings and diagrams. Sarco Co., Inc.

L-36—Analog computer for day-to-day chemical calculations and

. . . *Turn to page* 164



"Best warps I ever made" reports the first customer to use this new Kidde Model 149 C Warper. Built to take a 50" beam, this new warper is quickly converted to take a 42" beam. It runs any diameter up to 32".

Every KIDDE WARPER gives you the smoothest, most even warp beams in the business

Kidde warpers are *engineered* to give you smoothness and evenness in yarn buildup that's unmatched by any other machines you can buy. Here are a couple of reasons why:

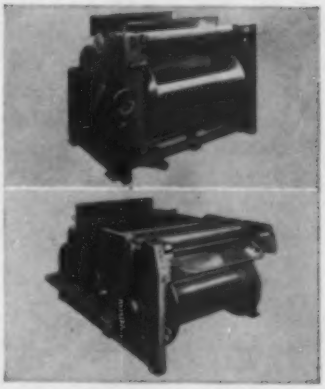
Instead of just one cylinder on the compression roller, Kidde gives you *two* – hydraulically operated – one on either end of the roller, for perfectly balanced pressure that eliminates bounce and chatter. And powerful brakes stop the beam within one revolution and automatically adjust themselves. What's more, the brakes on the measuring roll, compression roller and beam are electronically synchronized so yarn is never scuffed.

When used with a Kidde accumulator, both warper and accumulator are electrically synchronized. This maintains even tension when yarn must be backed off to pick up a lost end.

These are only a few major advantages of Kidde warpers. Get the full story of their trouble-free operation by contacting:

This Kidde warper handles beams up to 21" in diameter, made in three sizes: 21, 42 or 50 inches long. Every part is easily accessible. Regardless of size, any Kidde warper can be doffed automatically – even by a girl. Hydraulics do the work, at the touch of a lever.

Kidde high speed cotton system warper handles 54" section beams with flange diameters up to 36". Has all the quality features of other Kidde warpers with speeds up to 1,000 YPM.



TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS • BEAMERS
CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS • TENSION COMPENSATORS

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TEXTILE MACHINERY CORPORATION – BLOOMFIELD, NEW JERSEY

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LINT · FLY
TRASH
from your
SPINNING FRAMES
and ROVING FRAMES
Quickly • Economically

by using
M·B AMOSKEAG PNEUMATIC ROLL PICKER
Now, Improved MODEL 59

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

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NEW LITERATURE

. . . *Begins on page* 160

For more information on any of these items, circle appropriate number on the Reader-Service Card, next to the back cover.

continuous in-plant operation is described in 26-p. report. Form 80-105-003 includes mathematical derivations and wiring diagrams. Computer Systems Inc.

L-37—Weighing attachment for fork-lift trucks which makes possible in-transit weighing of loads is described in 4-p. leaflet, SS-1665. Drawings show operation and construction of device, photographs depict actual use. Clark Equipment Co.

L-41—Steel Selection for Machine Parts introduces a high-quality steel bar for use in making experimental parts, prototype and even regular production models. 4-p. leaflet lists characteristics of bar. La Salle Steel Co.

L-42—Theory and practice of solid lubricants are explained in colorful, 24-p., 4x9 pamphlet. Uses drawings to illustrate uses, varied forms of molybdenum disulfied lubricants. Alpha-Molykote Corp.

TEXTILE WORLD

To get items you want offered in the advertisements in this issue, just circle numbers on Reader-Service Card next to the back cover. If all bulletins listed under one number are not required, please write on card the name of bulletin desired.

Advertisers' Literature

A350—Union and Fittings. Brochure on request. The Fairbanks Co.

A351—Air Guider. Free catalog on request. Guider Specialty Co.

A352—Rotary Joints. Catalog S-3002 on request. Johnson Corp.

A353—Starch. Continuing technical-data service available on request. Hubinger Co.

A354—Receptacles. Free Line folder available on request. National Vulcanized Fibre Co.

A355—Salt. Information on chemcal-grade "999" salt available on request. Morton Salt Co., Industrial Div.

A356—Textile Chemicals. Following data sheets available on request: Caustic Soda Buyer's Guide, Lauryl Pyridinimum Chloride Data Sheet, Potassium Carbonate Data Sheet, Chlorine Manual, Oxalic Acid Data Sheet, Trichlorethylene Data Sheet, Hooker Chemical Corp.

A357—Cleaning Solvent. Free sample and textile bulletin on request. Harry Miller Corp.

A358—Fugitive Tints. Test kit and fugitive-tint brochure on request. Borne Chemical Co., Inc.

A359—Control System. Data 220-190 available on request. Foxboro Co.

A360—Kiers. Circular giving complete information on request. Wm. Allen Son's Co.

A361—Peroxide Process. Brochure on request. Solvay Process Div., Allied Chemical Corp.

A362—Overhead Cleaner. Illustrated Bulletin 21A on request. Bahnson Co.

A363—Latices. Details and Tech Book Bulletins on request. Goodyear, Chemical Div.

A364—Pneumatic Roll Picker. Literature on request. MB Products.

A365—Factors. Informative booklet, "Profit Through Factoring", on request. Walter E. Heller & Co.

A366—Roller Chain. 154-p. Book 2657 on request. Link-Belt Co.

A367—Rotary Joints. Illustrated Catalog 310 on request. Barco Mfg. Co.

A368—Acrylic Fiber. Technical-data bulletin on request. American Cyanamid Co., Fibers Div.

A369—"AC" Catalysts. Complete technical data available on request. Monsanto Chemical Co., Plastics Div.

ADVERTISERS' LITERATURE

A370—Extractor-Dryer. Bulletin on request. Turbo Machine Co.

A371—Textile Chemicals. Free booklet, "Chemicals for the Textile Industry", available on request. Rohn & Haas Co.

A372—Winders. Bulletin A-95 on request. Foster Machine Co.

A373—Multicolor Screen-Printing Machine. Illustrated catalog and printed fabric samples available on request. E. S. Rudnick.

A374—Power Transmission. Following bulletins are available: Bulletin 2100, Belt Drives: Bulletin 1100, "VPS" Variable Speed Drives; Bulletin 8102 and 4101, "MCS" Motion Controls; Bulletin 5103, Sure-Flex Coupling, T. B. Woods Sons Co.

A375—Bearings. Following complete data books available: Roller Bearing Bolsters; PK series Pendulum Weighting Arm; New Draftrite Roller Bearing Top; "SR" Tension Pulleys. SKF Industries.

A376—Water Treatment. Following bulletins available: Bulletin 4696, Model BD Softener; Bulletin 992, Fluidics Buyer's Guide; Bulletin 4721, Packaged Demineralizers; Bulletin 4351, Automatic Valveless Gravity Filter; Bulletin 4486, Treating Industrial Waste; Bulletin 2508, Ion Exchangers; Bulletin 2204C, Precipitator; Bulletin CS105, Wisprofloc-20 Coagulant; Bulletin CS-111, Neutralizing Amines; Bulletin CS-110, Briquet System, Plaudler Permutit, Inc., Permutit Div.

A377—Softener and Antistatic Agent. Technical information available on request. Procter & Gamble Co.

A378—Steel Strapping. Booklet "Idea No. 55-17" available on request. Acme Steel Co., Products Div.

TEXTILE WORLD . . . Calendar

October

21st Southern Textile Exposition, Textile Hall, Greenville, S. C., Oct. 3 to 7

AATT, monthly meeting, Della Robbia Room, Hotel Manger Vanderbilt, New York, N. Y., Oct. 5

Carded Yarn Association, annual meeting, Grove Park Inn, Asheville, N. C., Oct. 6 & 7

AATCC, national convention, Sheraton Hotel, Philadelphia, Pa., Oct. 6 to 8

Southern Textile Overseers Association, annual meeting, Hotel Greenville, Greenville, S. C., Oct. 7

Tufted Textile Manufacturers Association, annual workshop meeting, Chattanooga, Tenn., Oct. 12

Institute of Textile Technology, technical advisory committee and board meeting, Charlotte, Va., Oct. 18 & 19

Ga. TOE, fall meeting, Hightower Building, Georgia Institute of Technology, Atlanta, Ga., Oct. 22

Fiber Society, fall meeting, Washington Hotel, Washington, D. C., Oct. 27 & 28

November

AATT, monthly meeting, Della Robbia Room, Hotel Manger Vanderbilt, New York, N. Y., Nov. 2

Thread Institute, annual meeting, Hotel Commodore, New York, N. Y., Nov. 10

American Institute of Electrical Engineers, conference on electrical application in the textile industry, N. C. State College, Raleigh, N. C., Nov. 10 & 11

Alabama Textile Operating Executives, carding and spinning discussions, Georgia Institute of Technology, Atlanta, Ga., Nov. 12

Alabama Textile Education Foundation, fall meeting, Thach Auditorium, Auburn, Ala., Nov. 12

Textile Education Foundation, Inc., A. French Textile School, Georgia Institute of Technology, Atlanta, Ga., Nov. 12

ASME, annual winter meeting, Statler-Hilton Hotel, New York, N. Y., Nov. 27 to Dec. 2

Power & Mechanical Engineers Exposition, New York Coliseum, New York, N. Y., Nov. 28 to Dec. 2

1961

March

American Cotton Manufacturers Institute, annual meeting, Fontainebleau Hotel, Miami Beach, Fla., March 23 to 25

April

45th Knitting Arts Exhibition, Civic Auditorium, Atlantic City, N. J., April 24 to 28

PORTABLE MOISTURE MONITOR

New Model M-200 Moisture Monitor uses hand detector roll to read moisture in moving or standing warps, fabrics, and picker laps.
No calibration is required; the new instrument reads in PERCENT REGAIN for all popular fibers and blends.

STRANDBERG
ENGINEERING LABORATORIES, INC.
Dept. W-606 225 Summit Avenue
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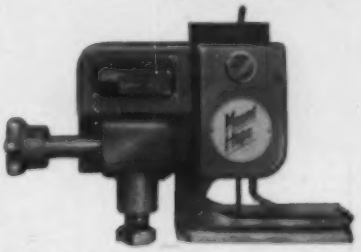


Here's the modern way to cut tentering costs! The Mount Hope Tenter Feeder Switch can be installed on any type tenter, equipped with pin or regular clips . . . guides pins or clips to cloth selvages — prevents misclips. It permits higher operating speeds . . . reduces seconds and reruns . . . requires minimum operator attention.

Write today for complete information on how you too can have evenly tentered cloth.

MOUNT HOPE MACHINERY COMPANY
50 FIFTH ST. TAUNTON, MASS.

O. E. HERZOG (left) has been appointed manager of the Mill Marketing Relations Dept., American Enka Corp., New York, N. Y. FRANK P. FIELDS (center) has been appointed to the sales staff, with headquarters in Charlotte, N. C. of Arnold Hoffman & Co., Providence, R. I. PETER A. WILSON (right) has been appointed sales representative in Virginia for Stanley Steel Strapping, a division of The Stanley Works, New Britain, Conn.

ALLIS-CHALMERS MFG CO., Milwaukee, Wis.—Has appointed R. C. Bown as manager of sales for the control department. Succeeding Bown as manager of the rectifier section is W. G. Williams. . . . **AMERICAN CYANAMID CO.**, New York, N. Y.—Has named Erwin G. Walker to the newly created post of sales manager in the South in Cyanamid's sales office in Charlotte, N. C. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has announced that Donald P. Feyler has joined the staff of the Textile Development Dept., Avisun Corp., as a specialist in dyeing and finishing. Herbert C. Schafer has been named to the post of district manager of the newly opened second district sales office in the Southeast for its new Industrial Packaging Dept. in Atlanta. . . . **ARCHER-DANIELS-MIDLAND CO.**, Minneapolis, Minn.—Has announced that it has earmarked $26-million for investment in new plants, products, and equipment in the next two years. . . . **ARMSTRONG CORK CO.**, Lancaster, Pa.—Has announced it will relocate its New York City sales offices in Rockefeller Center early in 1961.

BATES CHEMICAL CO., Lansdowne, Pa.—Has been purchased by Crompton & Knowles Corp., Worcester, Mass. Bates Chemical will be operated as a wholly owned subsidiary and will be expanded through affiliation with the Althouse Chemical Div. of Crompton & Knowles. . . . **BIJUR LUBRICATING CORP.**, Rochelle, N. J.—Has announced the appointment of Cotton-McCauley & Co., Inc., Pawtucket, R. I., as a distributor of its lubricating systems to the textile mills in the United States and Latin America. . . . **BORDEN CHEMICAL CO.**, New York, N. Y.—Has appointed Alvin E. Jerome sales representative for the Polyco-Monomer Dept. . . . **BRISTOL CO.**, Waterbury, Conn.—Has moved its Midwest-branch factory and offices from Chicago to Melrose Park, Ill. . . . **BULLARD-CLARK CO.**, Danielson, Conn.—Has announced that the E. H. Jacobs northern and southern divisions of the company have been sold. The northern division has suspended operations and moved to Charlotte, N. C. William R. Muller, vice president since 1950, has formed a new company, E. H. Jacobs Mfg. Co., which will have its headquarters in Charlotte.

A. B. CARTER, INC., Gastonia, N. C.—Has elected E. Haines Gregg executive vice president and treasurer at its annual stockholder meeting. O. L. Peach, former assistant secretary, has been elected secretary and assistant treasurer. A. Dewey Carter has been re-elected president and J. Bynum Carter has been re-elected vice-president. . . . **CHEMSTRAND CORP.**, Decatur, Ala.—Has appointed R. Houston Hale

LOW COST TROUBLE-FREE OPERATION ...EASY INSTALLATION

New ALLEN PACKAGE DESIGN KIERS

For boiling or bleaching all types of cotton goods from gauze to heavy twills, these new ALLEN stainless steel Package Design kiers offer unusual opportunities for more profitable operation to small and medium sized bleacheries and those doing fine fabrics. Large plants, too, find them extremely useful for short runs and special fabrics. In many cases, they are replacing continuous bleaching operations for certain types of goods. Allen Package Design Kiers feature:

- A completely prefabricated unit — pump and heater are integral parts of the kier — for easier installation and maintenance.
- Smooth, stainless steel interiors eliminate rub, rust and stain marks.

Write today for circulars giving complete information on this as well as Allen kiers for knit goods and kiers for cotton and cotton batting.

William Allen Son's Company
SHREWSBURY • MASSACHUSETTS

A Division of O. G. KELLEY & COMPANY, Boston 22, Mass.

manager of its New York district sales office. . . . **DIAMOND ALKALI CO.**, Cleveland, Ohio—Has appointed Charles P. Egolf to the newly created position of assistant manager of its Southeastern sales office, Memphis, Tenn. . . . **E. I. DU PONT DE NEMOURS & CO., INC.**, Wilmington, Del.—Has announced that more than $9-million will be spent to modernize and expand facilities at the Seaford, Del., nylon plant. . . . **ELLIOTT CO.**, Jeannette, Pa.—Has announced the appointment of Charles L. Hoebel as eastern regional manager. R. Wayne McLaughlin has been named general manager of its Ridgway, Pa., operation. . . . **EMERY INDUSTRIES, INC.**, Cincinnati, Ohio—Has named Robert J. Roberts district manager for the New England, eastern New York, and New Jersey area of the Fatty Acids Sales Dept. Robert P. Dames has been appointed to the New York area office. Mr. Dames will handle fatty acids and hydrogenated glycerides in northern New Jersey, central and northwestern Pennsylvania, central New York state, and western Maryland.

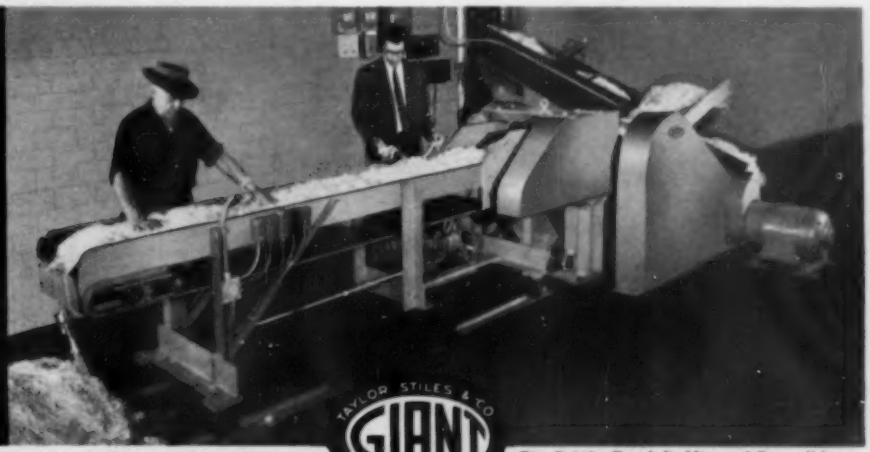
FOOD MACHINERY & CHEMICAL CORP., CHLOR-ALKALI DIV., New York, N. Y.—Has named William R. Daragan technical service representative of the division with New York as his headquarters. . . . **FOXBORO CO.**, Foxboro, Mass.—Has moved its seven-state Southeastern sales and service headquarters to a newly constructed building in Chamblee, Ga. . . . **GEIGY CHEMICAL CORP., GEIGY DYESTUFFS DIV.**, Ardsley, N. Y.—Has announced the assignment of William Meehan to the sales staff in the New England area with his home office in Newton Upper Falls, Mass. . . . **GOODYEAR TIRE CO.**, Akron, Ohio—Has assigned R. B. Huey and W. R. King to the home office of its chemical division.

HERCULES POWDER CO., Wilmington, Del.—Has appointed Joseph N. Borglin as manager, customer service, Pine Chemicals Div. of the Naval Stores Dept. of the company. **HEYDEN NEWPORT CHEMICAL CORP.**, New York, N. Y.—Has named Jerome T. Kratina sales representative for the New York area of its Chemical Div. . . . **HOLT ASSOCIATES, INC.**, Greensboro, N. C.—Has named three new men to its sales staff. Charles H. Crumpton will contact customers in South Carolina, making his headquarters in Lancaster. Wayne West will work from the home office contacting mills in North Carolina and Virginia. Charles M. Dunn will make his headquarters in Gastonia, contacting customers in Gastonia and surrounding areas. . . . **HOLYOKE MACHINE CO.**, Holyoke, Mass.—Has recently completed another addition to its plant. . . . **INSTRON ENGINEERING CORP.**, Canton, Mass.—Has appointed James L. Musgrove southwestern regional sales manager.

INTERNATIONAL LATEX CORP., Dover, Del.—Has announced that negotiations for the sale of Southern Latex Corp. have been completed subject to the approval of the board of directors of both companies. . . . **KOPPERS CO., INC.**, Pittsburgh, Pa.—Has announced six appointments and changes in the Tar Products Div. W. B. Jackson has been named production manager of the Follansbee Plant Group. W. E. Walters has been appointed administrative assistant to the production manager. J. P. McCarthy has been named to head the newly

EDWARD W. BEARDSLEY (left) **has been appointed southern regional vice president of the Industrial Div., Corn Products Sales Co., New York, N. Y. GENE N. CLINE** (center) **has been appointed technical sales representative for Wico Chemicals, Inc., Charlotte, N. C. ROBERT W. WURST** (right) **has been appointed sales manager of the new Atlanta, Ga., region of Industrial Chemicals Div., Pennsalt Chemicals Corp., Philadelphia, Pa.**

Use Less Power, Improve Product Quality with GIANT THREAD WASTE CUTTER



GIANT Thread Waste Cutters are built to withstand the grueling hours of steady running, the day after day demands for top quality cutting. They are engineered to shear-cut natural and synthetic fibers cleanly with a very wide range of lengths of cut—the length of cut being quickly changeable. GIANT machines cut synthetics without fusing, keeping the cut below the melting point.

Other features found on GIANT production type cutters are the pivotted arm feed which assists in maintaining uniform feeding and gives relative freedom from jamming; low power consumption; capacities up to 3000 lbs. per hour; easy accessibility to all parts.

There are GIANT Textile Cutters for every cutting need, designed by Taylor-Stiles Engineers working closely with leading garnetters, textile mills and fiber products manufacturers. All GIANT machines are backed with Taylor-Stiles technical assistance and free sample cutting service. Return the coupon or call today for complete information.

GIANT Cutters are "giants" for wear and "giants" for production!

Fig. G-145 Frank P. Mita and Co., well known garnetters of Philadelphia, use a No. 417 GIANT Thread Waste Cutter with excellent results.

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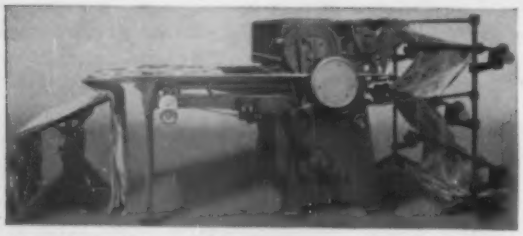

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News About Suppliers

. . . *Begins on page* 166

formed New England Plant Group. R. L. Rhoades succeeds Mr. Jackson as Follansbee Plant Group Manager.

LESSONA CORP., Providence, R. I.—Has broken ground for a $3½-million plant in Warwick, R. I. . . . **METALLIZING ENGINEERING CO., INC.,** Westbury, N. Y.—Has changed its name to Metco, Inc. . . . **MINNEAPOLIS HONEYWELL REGULATOR CO.,** Minneapolis, Minn.—Has appointed new general managers for two of its Industrial Products Group divisions. Kenneth Brierly has assumed responsibility for expanding activities of the Fall River, Mass., Div. John H. Hagen succeeds to Brierly's former post as head of the Rubicon Div. . . . **NEW YORK & NEW JERSEY LUBRICANT CO.,** New York, N. Y.—Has named Robert N. Ecsedy sales representative in Connecticut and Southeastern New York State.

OAKITE PRODUCTS, INC., New York, N. Y.—Has appointed Harlis E. Martin, Charles W. Pearce, and Frank T. Mountjoy as members of its technical field service organization. . . . **PUTNAM CHEMICAL CORP.,** Beacon, N. Y.—Has announced the appointment of Albert E. Sasseen as technical sales representative for the Atlanta territory. Milton Charatz has been appointed technical demonstrator for the Mid-Atlantic territory. . . . **REILLY-WHITEMAN-WALTON CO.,** Conshohocken, Pa.—Has appointed James H. Moore sales representative for Georgia and Alabama. . . . **SACO-LOWELL SHOPS, SACO-LOWELL TEXTILE MACHINERY DIV.,** Boston, Mass.—Has appointed Joe M. Glenn sales engineer for the division in the Charlotte, N. C. district sales office. A. Albert Molnar has been transferred to the Atlanta, Ga., territory as a sales engineer. Benjamin J. Zalking has been named to succeed Mr. Molnar and also to assume all responsibilities for the customer demonstration room at the Easley, S. C., plant.

WATSON-WILLIAMS MFG. CO., formerly of Millbury Mass., has moved its headquarters and manufacturing into this new plant at Pine Bluff, N. C. The plant is 200x180 feet and occupies a four-acre section of land.

SOABAR CO., Philadelphia, Pa.—Has announced it will move its plant and office operations to a newly completed building in January 1961. . . . **SONNEBORN CHEMICAL & REFINING CO.,** New York, N. Y.—Has appointed Jerome E. Levy as sales manager of its textile-chemicals division. . . . **SOUTHEASTERN LOOM & MACHINE WORKS,** Greenwood, S. C.—Has announced the appointment of Raymond B. Murray as senior methods engineer. Everett W. Allen has been named chief engineer. . . . **SQUARE D CO.,** Detroit, Mich.—Has announced the appointment of S. T. Walz as Southeastern region manager with headquarters in Atlanta, Ga. . . . **A. E. STALEY MFG. CO.,** Decatur, Ill.—Will produce Oxytrol starch at its new plant in Decatur late this year.

ULTRASONIC INDUSTRIES, INC., Albertson, N. Y.—Has begun work on its new plant at Engineers Hill, Plainview, Long Island. . . . **UNION CARBIDE CHEMICALS CO.,** New York, N. Y.—Has announced the promotion of Maxwell R. Kleeman to manager, Newark, N. J., district sales office. . . . **WESTINGHOUSE ELECTRIC CORP.,** Pittsburgh, Pa.—Has appointed Bruce W. Morrison area sales manager for the Boston district office. . . . **F. A. YOUNG MACHINE CO.,** Gastonia, N. C.—Has announced the promotion of Bobby Wright to sales manager in the southwest territory.

TEXTILE WORLD. . . News About Men

R. D. Archibald has been appointed vice president and general manager of Caldwell Linen Mills Ltd., Iroquois, Ontario, Canada, a division of Dominion Textiles, Ltd. He had been secretary and industrial-relations manager of the parent company.

Willis A. Barber has been appointed president of Burlington Cotton Co., Greensboro, N. C.

Joseph W. Barnett has been elected president of Cannon Mills Co., Kannapolis, N. C.

Scott H. Cottle has been named assistant controller of Bates Mfg. Co., Lewiston, Me.

David T. Demme has been appointed to the Greer Dept. of J. P. Stevens & Co., New York, N. Y.

Thomas M. Denning has retired after 60-years service as superintendent of Wiscassett Mills Co., Albemarle, N. C.

Elliot Doft has been appointed executive vice president with responsibility for general administration. In addition, he will coordinate marketing and sales with production at the Watertown and Waterbury plants of Princeton Knitting Mills Inc., Watertown, Conn.

B. H. Erskine has been named secretary and treasurer of Jefferson Woolen Mills, Knoxville, Tenn.

Russell Folk, former treasurer, assistant secretary, and plant manager of Rosedale Knitting Co., Reading, Pa., (now closed) has joined the private-brand division of Berkshire Knitting Mills, Reading, Pa.

David W. Foster, manager of the Charlotte, N. C., office of J. P. Stevens & Co., Inc., will return to New York and will be responsible for supervision of all local sales for finished tricot.

Kenneth W. Fraser has been elected vice president of Eureka Printing Co., Clifton, N. J.

George Friedlander has announced he will retire from the post of president of Duplan Corp., Winston-Salem, N. C.

Dolan B. Frye has been named general superintendent of Wiscassett Mills Co., Albemarle, N. C.

W. T. Galey, III, has been elected vice president in charge of finances of Aberfoyle Mfg. Co., Phila., Pa.

G. T. Gardner has been appointed chairman of the Technical Advisory Committee of the Garment Manufacturers Association. Mr. Gardner is with Riegel Textile Corp., New York, N. Y.

Walter E. Greer, Jr., senior vice president of Burlington Industries, Inc., has been named president of Burlington International AG, Glarus, Switzerland.

James Gribben, III, has

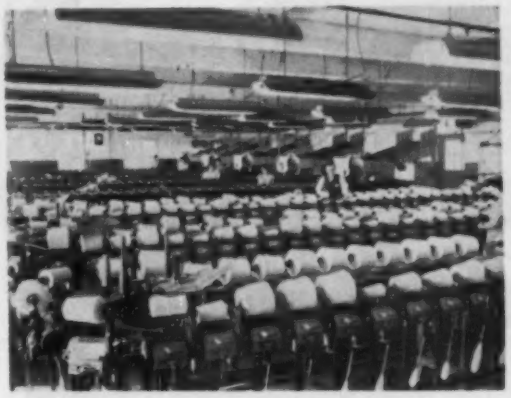
T. D. LEWIS, JR. has been named product manager of Belfast Self-Ironing Fabrics Div. of Deering Milliken Research Corp.

BROOKS R. PRINCE has been elected secretary of Reeves Brothers, Inc., New York, N .Y. He will continue as controller.

ABBOTT MACHINE CO., Inc.

WILTON, NEW HAMPSHIRE

SOUTHERN SALES AND SERVICE: GREENVILLE, S. C.



AUTOMATIC CONE OR TUBE WINDERS—for winding all types of spun yarns on cones or tubes for Warping, Dyeing, Twisting, Quilling, Knitting or Sales Packages.

SPECIAL WINDING UNITS FOR KNITTING CONES—include a new slub catcher and a new waxing attachment, which uses standard size commercial wax disks.

LARGE PACKAGES—can be wound up to 11½ inches in diameter for use on shuttleless looms and looms that require a cone supply.

MODEL I AUTOMATIC QUILLER—for coarse count cotton, worsted, wool and other spun yarns, delivers full loom bobbins automatically into boxes, onto pinboards, on wide belt conveyor for inspection of bobbins, or into specially made magazines for automatic loom feeder.

MODEL II HIGH SPEED AUTOMATIC QUILLER (10,000 R.P.M.)—for winding fine count cotton and synthetic yarns of either spun or filament construction.

Also delivers full looom bobbins automatically into boxes, onto pinboards or wide belt conveyor for inspection of bobbins.

Under some conditions one operator can run two or three machines and produce upwards of 2500 full loom bobbins per hour.

ABBOTT FULLY AUTOMATIC RADIAL QUILLER, MODEL II—especially designed for flexibility, is very versatile and particularly well adapted for winding numerous small lots of filling.

Winds coarse or fine count cotton, worsted, wool, rubber and various synthetic yarns, either spun or filament.

Automatic delivery of full loom bobbins onto pinboards, wide belt conveyor for inspection of bobbins, into baskets or other type containers.

Automatic delivery of bobbins can also be supplied whereby full loom bobbins from the individual cones and spindles are delivered into separate containers, which is highly desirable for loom finish yarns and the like.

The Radial Quiller can also be equipped with measured yardage attachments to give accurate, uniform bobbin yardage, as required for two-shuttle looms.

A wide range of spindle speeds for approximately 1000 R.P.M. to 10,000 R.P.M. is obtainable.

One operator can run several machines and thus produce up to 2000 loom bobbins, or more, per hour.

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131 Jackson St., Oshkosh, Wisc.
"Special Finishing Machines Since 1890"

NEWS ABOUT MEN

JOHN L. DUGAN, JR. has been named industrial relations director for Chicopee Mfg. Corp., New Brunswick, N. J.

ADOLPH RAPOPORT has been appointed director of the International Div. of Bates Fabrics, Inc., New York, N. Y.

been named director of public relations by the Tufted Textile Manufacturers Association, Dalton, Ga.

Irwin J. Gusman has been appointed manager of the Industrial Fiber Glass Dept. of J. P. Stevens & Co., New York, N. Y.

Frank Hall has been named superintendent of dyeing and finishing at Pyramid Piece Dye Works, Inc., Paterson, N. J.

R. Carter Henry has resigned as assistant general manager of the six plants in the Greenville, S. C. division of J. P. Stevens & Co., New York, N. Y.

Edward G. Hochberg has been named industrial sales engineer of Pellon Corp., New York, N. Y.

Kenneth Jenkins, overseer of dyeing, has assumed the new post of chief chemist at Hatch Mill, Columbus, N. C.

Clarence F. Johnson, Jr. has been appointed merchandise manager of Cabin Crafts, Inc., Dalton, Ga.

W. H. Johnson has become sales manager of the home-furnishings division of Bates Fabrics, Inc., New York, N. Y.

James Jones has been assigned to the Baltimore office as a sales representative for Cone Mills, Inc., Greensboro, N. C.

Sallo M. Kahn has been elected a vice president of Wellington Sears Co., New York, N. Y.

Harold V. Kennedy has been named to head the Milium Div. of Deering Milliken, Inc., New York, N. Y.

William M. Kuzmiak has been appointed assistant sales manager in charge of the New York office of Cone Mills, Inc., Greensboro, N. C.

Gerry L. Lebach, production manager and purchasing agent, has resigned from Marum Mills, Lawrence, Mass.

Charles E. Lyons, has retired after 44 years with the Bigelow-Sanford Carpet Co., Thompsonville, Conn.

Gerard P. Mandry has been named advertising manager of Belfast Treated Fabrics, Deering, Milliken & Co., New York, N. Y.

A. Foster McKissick has been named a member of the State Development Board of South Carolina. He is president of Keowee Mills, Inc., Easley, S. C.

Irving P. Mintz has been appointed general manager of Eureka Printing Co., Clifton, N. J.

E. J. Neal, until recently president of the Rex Mills Division of Aberfoyle in Gastonia, N. C., has been named vice president in charge of operations of Aberfoyle Mfg. Co., Philadelphia, Pa.

Irwin Needle has been named director of styling and fabric development of Prince-

. . . Begins on page 169

ton Knitting Mills, Watertown, Conn.

Patrick J. Nolan has been appointed as sales representative for the carpet and scatter-rug divisions of Callaway Mills, Inc., New York, N. Y.

John C. Prosch has been named to succeed David W. Foster as manager of the Charlotte office, J. P. Stevens & Co., New York, N. Y.

A. S. Robinson has been elected treasurer of Aberfoyle Mfg. Co., Philadelphia, Pa.

Gilmore P. Scholes has been named assistant to the director of personnel of The Kendall Co., Boston, Mass.

Irving Schwartz has joined the sales office in New York of Glenoit Mills, Inc., New York, N. Y.

Samuel Silverman has been named vice president in charge of marketing, Princeton Knitting Mills, Watertown, Conn.

James Trotter has been appointed sales manager of the carpet and scatter-rug divisions of Callaway Mills, Inc., New York, N. Y.

Joe R. Walters, Jr. has been promoted to assistant sales manager of Hillside plant of Callaway Mills, Inc., New York, N. Y.

Wilton West has been promoted to technical supervisor of the Ware Shoals Div. of Riegel Textile Corp., New York, N. Y.

H. D. Whitener has been elected vice president in charge of manufacturing of Aberfoyle Mfg. Co., Philadelphia, Pa.

Robert L. Wilkey has been promoted to superintendent of Eureka Printing Co., Clifton, N. J.

James Pate Williams has been named superintendent of the Dixie Mill Div., West Point Mfg. Co., with headquarters in West Point, Ga.

Reid Williams has been named general superintendent of Pacolet Mills, plant in Gainesville, Ga.

Jerry Zieger has retired after 30-years service as New York sales manager for Brunswick Worsted Mills, Inc., Moosup, Conn.

OBITUARIES

Charles H. Brownell, 82, retired textile executive, Burgess Mills, Pawtucket, R. I.

Edgar Dixon, 89, former president, George Moore Wool Scouring Mills, Chelmsford, Mass.

Samuel S. Garmise, 55, manager, Draper Loom Filament Fabrics Dept., Synthetic Div., J. P. Stevens & Co., Inc., New York, N. Y.

Louis F. Hall, 80, retired president, Sanco Piece Dyeworks, Phillipsburg, N. J.

Otto C. Haufe, 68, former director, Turner Halsey Co., New York, N. Y.

Robert W. Lownds, 72, retired textile designer, Bridgeport Fabrics, Inc., Bridgeport, Conn.

Charles Quade, 81, former divisional merchandise manager, Ely & Walker Div., Burlington Industries, Inc., Greensboro, N. C.

Dr. Robert Reiner, 80, the founder and the president of Robert Reiner, Inc., Weehawken, N. J.

Earl Sandlin, 78, retired supervisor, Southern Worsted Mill, Greenville, S. C.

George P. Stone, 91, former supervisor, Cone Mills, Corp., Greensboro, N. C.

Alexander Tannebaum, 60, president, Chatham Textile Co., Inc., New York, N. Y.

Thomas O. Williams, 52, general sales manager, Film Div. American Viscose Corp., Philadelphia, Pa.

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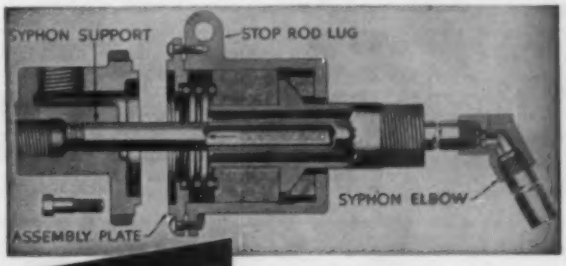

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Shows self-supporting Johnson Joints for all needs . . . on print cans, calenders, compressive shrinkage ranges, big 5' and 7' cotton slashers, dry cans, etc.

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1—Proctor & Schwartz 60' Loop Dryer, 126" sticks, temp. controls
1—Proctor & Schwartz 60' Loop Dryer, 102" sticks, temp. controls
1—Andrews & Goodrich Air Lay Dryer, 54' long, 64" conveyor, elec. eye control, MG set
2—Rodney Hunt Stainless Encl Dye Boxes, 16' wide
1—Burlington Eng Stainless Encl Dye Box, 16' wide
2—Van Doorne Stainless Encl Dye Boxes, 12' wide
3—Rodney Hunt Stainless Encl Dye Boxes, 10' wide
1—Van Doorne Stainless Encl Dye Box, 4' wide
1—Rodney Hunt Sample Stainless Encl Dye Box
2—Rodney Hunt Stainless Encl Rope Washers, Pneu. Squeezers, 8 comp'ts, temp. controls
1—Morrison Pneu. Padder, 2 rolls, 60" 15 ton pressure
1—Amer. Laundry Monex Extractor, 17" dia., basket
1—Amer. Laundry Cascade Washer, 1 comp't
1—Amer. Laundry Cloth Press
3—Werner Enclosed 70" Dye Jiggs
8—Werner Stainless Dye Jiggs, 60" wide
2—Werner Stainless Dye Jiggs, 50" wide

1—Morrison Continuous Stainless Williams 60" Dye Range, 1—Pneu. 15 ton Padder, 2—Williams Units, 3—Wash Units, 5—5 ton Micro-Set Squeezers, Vacuum Extractor, Reliance Motor Generator Unit—Age 1948
2—Riggs & Lombard Stainless Encl Dye Boxes, 8' wide, 60" deep
1—Butterworth Stainless Encl Dye Box, 8' wide, 68" deep
1—Rodney Hunt Stainless Open Width Washer, 80" wide, 2 comp'ts
1—Morrison Micro-Set Padder, 60" wide, 5 ton pressure
1—Cook-PN Pneu. Padder, 60" wide, 5 ton pressure
1—Textile 2 roll Padder, 65" wide, screw set
1—James Hunter Stainless Dye Machine, 46" wide, Pneu. Squeezers, 40" wide—Age 1956
1—Meadows Hyd. Embossing Calendar, 72" wide, 25 ton
24—Stainless Steel Dye House Trucks, 60" long
1—Van Vlaanderen Finishing Calendar, 60" wide, 3 rolls
1—Plastic Coater & Oven Unit, 64" head, Michigan gas heated Oven

WEAVING

12—C & K W3 Convert. Looms, 64" wide—Age 1939
13—C & K Jacquard Rug Looms, 49" wide, 204 hooks
26—C & K 56 Looms, 54" wide, 4 x 1 box—Age 1948
2—Smith-Drum 500 lb. Package Dye Units—1948
2—Smith-Drum 100 lb. Dye Units, hi-pressure
1—Cocker 9-can slasher, 60 x 30" cyl.—1948
2—Cocker 7-can slashers, 60 x 30" cyl.—1948
1—Abbott #65 Paper Cone Winder, 8° 4' cone, 100 spdls.
1—BC Portable Tying-In-Machine, Model LC
1—Reiner Hi-Speed Warper 54¼", 440 end creel
2—Proctor & Schwartz Non-Woven Units—Age 1954
1—Turbo Crimper Machine—Age 1950
1—Fibre Yarn Experimental Laboratory, complete

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18—Flufion Machines
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5—Atwood—10B Doublers
1—Fletcher 2LB Doubler
1—Whitin Ring Twister—Mod. D
11—Unirails Twisters—501
6—U. S. Hdless. Pkg. Twisters
8—Utility D.D. Uptwisters
100—Universal No. 50 Winders
80—Foster 75A Winders
5—Atwood Mod. 200 Redraws
2—Sipp Spdless Redraws
3—Arnold Covering Machines
Smith Drum S.S. Skein Dyers 1-12, 1-10, & 1-7 Arm
1—Foster Mod. 102 Cone Winder
4—C & K W-2 Looms
2—Tirrell Strippers
1—Cocker 9 Can Slasher
1—Fletcher 2 Fly Reeler
20M—10B Spools 8" T. x 4⅜" B.
10M—Phen. Spools 6" T. x 3½" H.
10M—Shafts 4⅜" T. x 5" H.
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5—Werner—70" Dye Jiggs
1—Paterson 64" Tuber
1—8'—Blickman enclosed dye beck
2—12" Blickman enclosed dye becks
2—Reiner Twin-Knitters 60 ga.
1—VV—50'-60" Palmer Tenter
2—VV beamers—50"—60"
1—VV—BB-calender—50"
2—VV—Dye Jiggs—60"
1—Vertical Set 18-130" SS cans 35 lb
1—Hinnekens 75" Bolloff Mach. #212; 50

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1951-52 Models, 100 Spindles ea., 8" Trav., 7" ga. 4½" Ring. Taper wind. 2 lb. capacity

1954 GESSNER *Modern* Hi Torc 80" NAPPER

Motorized—Complete With GESSNER CENTER WIND AND MOTOR ★ Machine Like New ★

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32 DRAPER 44" X D's—20 HAR. DOBBY . .
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12' WIDE . . 40" D . . S.S.
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30" W . . 50" D . . T.E. . . S.S.

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2—Padders, 2 Roll, 50" Wide, 6 Tons
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2—C-W, 750 KW, Turbo-Generators

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2—Air Perme-ator Humidifier Units.
1—VV 3 Roll Calender 60"
51—Spdle Whitin Schweiter Auto Quillers.
1—RB&F 44" 5 color print machine.
1—Hinnekins Moire Calender 50" New.
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1—BEATER, Mawaco, 65", for High Pile Fabrics, Adj. Tension Leton.
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2—MEASURING & ROLLING Mach., P&W., AWC Models, 66", 80", 100 Yd. Dial.
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1—NAPPER, Knitgoods, D&F., 80", 20 Roll, Turning Arms, Folder, M.D.
2—NAPPERS, D.A., D&F., 72", 80", 24 Roll, Folder, Motor Drive.
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2—MIXING PICKERS, D&F., 60", 42", 6 Bar, Steel Bonnet, Feed Table, M.D.
2—QUETSCHES, Hinneken, V. Vlaanderen, 2 and 3 Roll, 50", S.S. & Copper Pans.
2—ROTARY PRESSES, Voelker, 65½", 86", Double Bed, Motor Driven.
1—SQUEEZE SET, R. Hunt, 2 Roll, 80", B.B. with Speed Reducer, Motor Dr.
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2—Holdsworth Gill Reducers
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1—H & W yarn conditioning oven
2—Hunter Fulling Mills 26E
1—Smith Drum 100 arm S.S. skein dye
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2—Hussong S.S. stock & skein dye
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1—Sample Card, 18" x 13", M.D.
4—Whitin Model A Spinning Frames, 3" Ring, 4½" Gauge, M.D.
2—Whitin Model A Spinning Frames, 3" Ring, 4" Gauge, M.D.
1—D & F 6 Bar 48" Mixing Picker with Feed, Oiling Device, Blower, M.D.
1—Schofield Picker 42" Wide, 32" Dia., BB, 1950, M.D.
1—P & S Ceiling Condenser

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National Loop Dryer, built 1943, 8 Heating Unit Heaters, individually motor driven, 32' long without take off, 10' inside dimension, revolving polls.
1 Dye Beck, Stainless Steel, 500 lb. capacity.
1 Model 102 Foster Winder, 60 spindles.
All equipment in very good condition.

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All Iron, Motorized, Tape Condensers
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Attractively Priced for Quick Sale

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WANTED: KNITTING MECHANIC

on warp knitting machines, Raschelle and Tricot. Must be completely experienced. Must be capable of assuming complete charge of upkeep and maintenance of modern warp knitting mill.

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Experienced loom fixer for XP and Modified D Draper Looms weaving novelty fabrics. State all details in first letter. P-5328, Textile World.

Equipment Development Engineer: Unique endless industrial fabric developments for application in paper, other industries requires conception and development of completely new equipment for their successful operation. Experience designing textile finishing machinery provides excellent background for this interesting growth opportunity. Huyck Equipment Co., P. O. Box 30, Milford, Conn.

(Continued on page 176)

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30—H. & B. Revolving Flat Cards, 3" ga.
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12—Atwood Redraw Machines, '50
56—Universal #10 Uptwisters, 184 spdls. 2 lbs. headless package, 1950
2—Universal 10B Ring Twisters, 100 spdls. 7" gauge, 1954
3—Sipp-Eastwood Warpers, '49
1—Johnson 7 can Slasher, 1949
1—Bachman-Uxbridge Gentle Air Slasher
1—Barber-Colman Spooler, 162 pockets, Model KK
3—Abbott Quillers, 120 spdls. '55
208—Spindles Whitin Schweiter Quillers

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1—77" Embossing Calender
1—3-roll Calender
1—42" VV Silk Calender
1—Singer
1—50" Button Breaker
1—60" Morrison 60" Compressive Shrinking Machine

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15,000 spindles, 3¼" gauge, Whitin Model B
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16—44" XK Looms, Center Fork, Dobby
10—C&K C-4 Looms, 72", 4 x 1
50M—14" Drawtex Heddles in 51" Frames
20—Diehl 1½ HP Loom Motors, 1800, 220V
1—E&H Cloth Folder, 50", Air Lift
1M—Abbott Pinboards, 60 Pin
6—Yale ½ Ton Spur Gear Hoists
1—Strobotac, 1—Trumeter Balance
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30—Vendor-Root 3 Shift Pick Counters

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4 late model E Kidde machines 139" wide

2—40 gauge 10 bar 6 leaded
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All Diameters Any Length

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(Continued from page 174)

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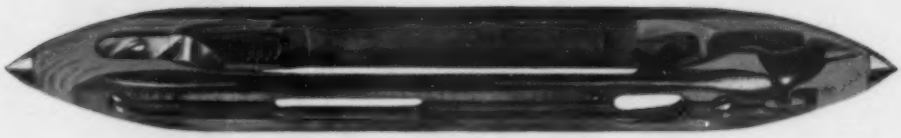
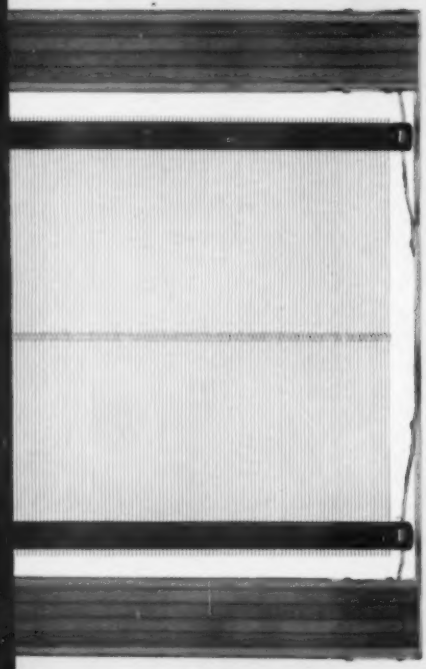


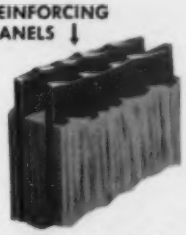


STEHEDCO Duraweld Harness Frames are Premium Grade and guarantee longer life. Each Duraweld frame stick is a lamination of strips of carefully selected, high quality wood permanently bonded together for greater strength and stability. This assures less distortion, warping, and splintering, with greater holding power for hardware, and elimination of weak spots.

SOUTHERN Duraweld Shuttles are made of finest quality tempered dogwood end blocks, for greater resiliency and tip retention, permanently bonded by an exclusive Southern method to long wearing wall sections of laminated wood or plastic. They assure at least 100% longer life expectancy with only a very moderate weight increase.

STEHEDCO Duraweld Picker Sticks provide the unexcelled combination of greater strength and whip, plus resistance to warping. They are made of multiple laminated veneers of high grade hickory reinforced with veneers of vulcanized fiber, permanently bonded with phenolic adhesive into a uniform panel.

Duraweld Harness Frames, Shuttles and Picker Sticks are manufactured with great care under rigid Quality Control methods, and will pay for themselves over and over again with superior performance and longer life. Ask one of our qualified Sales Engineers to show how YOU can start counting your savings when you invest in DURAWELD.



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